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THOMAS PARRAN, M.D., F.A.P.H.A. (*Life Member*)

President of the American Public Health Association; and Surgeon General, U. S. Public Health Service, Washington, D. C.

IT is a signal honor for any member of our profession to be elected to the presidency of this Association. I am deeply grateful for the esteem and confidence of my colleagues who have given me this high office of privilege and opportunity.

We are met in this 65th Annual Convention as an organization invested with new life, a new interest in the contemporary scene, and a new zest for the tasks before us. Because social concepts are changing, and among them the concept of public health, the wisdom we show in dealing with those tasks will determine largely the future of public health in our time. And what wisdom we have had, for the most part has stemmed directly from our professional collaboration in this, the only professional organization in which there is a place for all public health workers.

Our common interests grow with the expansion of our work, and the needs of the Association keep pace with them. Just as laboratory equipment needs to be kept up to date, so the Association from time to time will need to adjust and readjust details in plan and program to promote the continuing purpose of the Association, which is the attainment for public health of its rightful place in the life of the nation. This purpose is so fundamentally important that its achievement should command the personal service, the active interest, and the zealous loyalty of each member of our profession. Our membership should be doubled, yes even tripled; regional and state societies, now tottering infants, should become powerful branches. For unless the practitioners of public health can make common cause, they will not be able to ask coöperation for their cause from the American people. Drawing its members from many basic sciences, this organization should develop in them the guild spirit. Out of conference, discussion, and study should flow clear statements of policy, objectives, and methods. Public health needs should be interpreted to the people. Appropriate public action to meet those needs should be suggested and encouraged by this Association. Ours is a dynamic profession. In it and because of it great events are transpiring. We have it in our power,

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through the efficient functioning of this Association, to make permanent contributions to the promotion of physical and mental health for all the people.

What is the place of public health in modern life? Formerly it was concerned only with the mass problems of sanitation. The practical disappearance of many diseases directly caused by an unhealthful environment is one of the brightest chapters in the story of man's progress. But even though such diseases as smallpox or typhoid no longer overwhelm us, we dare not relax our effort. We must hold the lines, consolidate our gains, and push on to the gaining of new ground against the diseases and conditions which continue, needlessly, to waste the lives of our people. Public health in the light of present scientific knowledge goes far beyond environmental sanitation. It necessarily must be concerned with all factors which make for healthful living—the prevention, alleviation, and cure of disease by all methods known to science; the promotion of the physical and mental status of the race; the provision of decent housing, healthful working conditions, facilities for recreation, food adequate in amount and kind for proper nutrition; a standard of living compatible with normal family life and the upbringing of children. It is the *specific* responsibility of public health to provide, through community effort, those services for the saving of life and prevention of disease which the individual is unable to provide, or to provide as well, by his individual efforts.

In addition to those generally accepted health measures which are provided directly by a health department, community effort concerned directly and indirectly with public health may be considered broadly in two groups:

1. Those measures of direct concern to a health department but not necessarily provided by it, such as bedside nursing, medical, dental, and hospital services for the population groups in need of them.

2. General health measures, such as better housing and recreation facilities, which have a direct influence upon health but in this country have been unrelated to health agencies.

There is much difference of opinion as to how far a health department itself should administer activities in the first group.

If control of a disease is possible only when adequate treatment is provided for that disease, it is generally agreed that the health department has a direct responsibility to see that such treatment is given to those unable to provide it for themselves, whether for tuberculosis, for syphilis, or for pneumonia. Such service must be provided and coördinated with other public efforts for the prevention and cure of disease.

In principle, I hold the view that all community services for the prevention of disease and care of the sick should be the responsibility of the health department, in so far as such measures are paid for from public funds. The extent to which these services are actually administered by the health department, however, is a matter which can best be decided by the individual state or locality.

In addition, health departments should be particularly interested in the control of any disease which is a burden to the community, whether or not communicable, because of its wide prevalence or the excessive cost of treatment to the individual. The coordinated campaign against pneumonia launched last year by the organized medical profession of New York State and the State Department of Health is a case in point. Another example is the cancer campaign in Massachusetts. Mass attack upon these and similar diseases is relatively new, however, in a majority of the states. We have been looking at them through a micro-

scope for so long that it is difficult to refocus for a telescopic view. Yet both views are necessary if we are to see them in their entirety, and both the individual and the mass attacks are necessary, if we are to gain ground against our modern plagues.

In the tremendous problem of providing medical care for the indigent, the social welfare agencies have taken the lead, largely because health departments have been unwilling or unable to accept this as a direct responsibility. The situation, however, is somewhat analogous to the relation of the health officer to the public water supply. He must know the needs for an adequate supply of potable water. He champions the provision of such a supply. He sees to it that the water plant is properly operated, even though this may be done by another branch of the city government. This is the minimum responsibility which the health department should assume, both for the public water supply and for the public medical service needed by those unable otherwise to provide it. In fact, the health department should be instigator of and friend to all useful activities for the conservation of life and health. For if health officers do not recognize their responsibility, using all methods given us by science, to organize community attacks upon causes of ill health, the public health profession will revert to the ancient status of sanitary police, and other public medical agencies will be established to deal with the major health problems of today and tomorrow. We may be sure such problems will be dealt with.

Chief among the problems of today is that of establishing upon sound bases the health provisions of the Social Security Act. Last year in Milwaukee we heard several discussions of the promise to health work inherent in this Act. This year we can report that this promise is being realized in terms of more and better health service to the people. Though relatively small in total expenditure as compared to that for other aspects of security, the $13,200,000 allotted this year from the Public Health Service and the Children's Bureau, as compared with the previous meager and sporadic federal appropriations, represents a great advance and has helped to provide more tools for life saving. It has lessened by a little the gap between our knowledge and our performance of how to promote health. It has given us, at last, the beginnings of a national health program. Though we are spending for this purpose about 10.7 cents per capita, or about 10 per cent of previous public health expenditures, nevertheless these funds have made it possible to employ 2,536 full-time persons and 496 part-time personnel, among whom are 579 physicians, 1,081 nurses, 65 dentists, 144 engineers, 296 sanitary inspectors, and 174 laboratory technicians, as well as badly needed clerical assistance.

The administrative organization has been strengthened in all states but 5; $500,000 being spent for this purpose. Local health service is being aided in all states but 2; $3,500,000 being spent for this purpose.

The technical services of the states are using another $1,300,000. Approximately $1,000,000 is being used for the training of 1,243 personnel. Another $1,200,000 is accounted for by special health activities such as work in industrial hygiene, malaria in the southern states, plague on the Pacific Coast, and syphilis wherever the state health authorities have the interest and the energy to pursue it.

In order to match federal health funds, new state and local appropriations approximate $3,000,000.

Further impetus to public health has been given through the use of federal emergency funds which financed the

national health inventory started in 1935 by the Public Health Service and almost completed. This should make available information concerning many aspects of national health heretofore unknown, including the incidence and duration of serious disabling illness among 3½ million persons over a 12 month period; the medical and nursing service which they received; the prevalence of chronic diseases, of orthopedic defects and blindness; the incidence of specific communicable diseases and the completeness of reporting; and the extent and utilization of medical and public health facilities in the different types of communities.

Employment through federal emergency funds has been provided also for approximately 6,000 nurses, themselves destitute, who have been added to the staffs of state and local health departments for community nursing. In some states, this has represented a 50 per cent increase in the total public health nursing personnel. Fifty thousand hospital beds similarly have been provided with the assistance of federal funds.

Community sanitation has been improved in 41 states; approximately 1,000,000 sanitary privies have been constructed. Extensive drainage projects in 16 southern states have provided more than 10,000,000 feet of ditches draining 87,000 acres and protecting 2,290,000 people against malaria. There are under way or completed 4,080 projects for the extension and improvement of public water supplies and sewage disposal plants at a cost to the federal government of $426,572,411. In fact, sewage treatment facilities have been increased by more than 30 per cent during the past 4 years. Pollution of streams has been further reduced by the sealing of nearly 4,000 abandoned coal mines.

In addition to grants-in-aid to states and the use of emergency funds for purposes of health and sanitation, appropriations of the Public Health Service for research into problems of disease and sanitation have been increased by more than $1,000,000. The record will show that the composite of these activities is contributing substantially to the health of the nation. We have made a good start. How far we go depends upon our ability as health workers to get together and to work together, and upon the capacity of the public health profession to interpret such work to the citizen and taxpayer.

This last possibility begins to look somewhat more promising. In the past we have thought somewhat wistfully that public health might be sold to the public if we could train health officers to be orators and advertising writers. That method is as impractical now as it ever was. Yet so far as gaining our objectives is concerned, we are fortunate in that sales resistance is decreasing. It is becoming obvious that the taxpayer can save money through the prevention of disease. He is begining to ask: "Why should we pay pensions for the blind and do so little to prevent blindness? Why should we add to the burden of those made destitute in their old age by chronic preventable sickness? Why should we pay widows' pensions when we could prevent the death of the breadwinner?" There has been added, therefore, to the humanitarian appeal of public health—and humanitarianism is one of the last of the acquired human characteristics—the direct economic advantage of public health work which can be made obvious to the most penny-pinching taxpayer.

The point is that in public health we have a task which, within scientific boundaries, we know how to do. No matter what their school or party, economists have not yet demonstrated that they know how to prevent cycles of unemployment; therefore, insurance

is provided in most civilized nations to soften the impact of a job loss. Until science shows us how to prevent unemployment, we must care for the unemployed. The cost of this, by whatever method, is a necessary tax. Not so the tax for carrying the burden of the needlessly unfit. The mother who dies in childbirth, needlessly; the father who contracts tuberculosis in industry; the young people who are infected with syphilis; the children who grow up deformed by rickets—each contributes to the breaking up of a family, to social and economic loss. All are examples of the *preventive* possibilities of public health provisions under the Social Security Act as contrasted to the *palliative* nature of job insurance and pensions for the unemployable.

We may have confidence not only in objectives of today's national health program, but also in its method. The federal-states relationship in public health functions smoothly because we merely are extending a well established procedure. In 1880 the Congress authorized the Public Health Service to coöperate with states in the prevention and control of epidemic diseases. The mechanism of such coöperation has been worked out during these past 56 years. We can cite this half century of federal-states relationships in public health in support of the soundness of the principle, in the flexibility of action which is permitted, and in the avoidance of over-centralization.

Thus far, I have discussed public action in the health field. A distinctive feature of public health work in this country has been the active participation of voluntary organizations and foundations. The question frequently brought up now is the extent to which the work of such non-governmental agencies will be replaced by the present larger public expenditures.

It is hoped that it never will be necessary to replace the health work of the voluntary organization. Current public expenditures fall far short of present needs. The acceptance by the public of responsibility for work originally started as a voluntary experiment frees voluntary funds for other pioneering effort. The frontier of public health constantly is expanding as science gives us new tools with which to attack new disease problems. The frontier represented by the periphery of a circle obviously grows larger as the circle expands. Moreover, the application of knowledge brings increasingly the need for practical information concerning most effective methods. To develop these methods, to work out new technics, to promote further research, to make experimental application of laboratory facts, to prepare the public mind for acceptance of new health activities, to inform the public of the values and results of public health programs, is the continuing opportunity and obligation of the voluntary and philanthropic health agency.

I have referred to the need for wisdom in doing our tasks. The current extension of public health work makes it extremely important that we should consider critically the work we are doing, appraise the effectiveness of procedures, discard the less useful, and take up with more vigor those tasks which promise a larger return for money and effort. Such studies of administrative practice as have been carried out by this Association, and also studies of public health methods which have been conducted by the Public Health Service are providing tentative means for such appraisal.

Sometimes it has been said that we have been too much concerned with the internal organization of health service and too little concerned with the actual service rendered to the people. The public is interested in what it gets from its health department, not in its form of organiza-

tion. Perhaps we have gone too far also in insistence upon a "balanced program" which, upon analysis, may mean mediocre performance in many fields in accordance with predetermined standards which have little or no scientific basis, rather than a determined and adequate frontal attack on the few major preventable conditions.

An evil to be guarded against in the federal-states relationships and in the work of this Association is too early and too great an insistence upon standardization. The problems of this country are so diverse that we should not make a uniform approach to such a multiform situation. Suppose the automobile manufacturers had standardized on the 1920 models! I fear that some health departments standardized before they modernized.

I agree with those who feel that we should direct our attention to particular diseases and conditions, using the health organization as a means to an end rather than an end in itself. On other occasions I have discussed the reasons why the control of syphilis, tuberculosis, cancer, pneumonia, infant mortality, and improved nutrition should be major objectives. Mental hygiene has a real contribution to make to clear thinking and emotional stability. In certain places it may be malaria or some other geographically limited disease. In every case, however, we should attack with most vigor where the greatest saving of life can be made.

The late Edgar Sydenstricker more than any other individual was responsible for the inclusion of public health in the national program of social security. He has said:

> The program of public health in its broad as well as its narrower sense should be designed to meet the peculiar needs of the individual community rather than to conform to any standard pattern.—The practical coordination of efforts does not necessarily imply public control of such efforts nor the centralization of control or administration. On the contrary, it is assumed that different communities or the individuals composing such communities may discharge its responsibility each in its own way or ways.

I have said that our social concepts are changing, and among them the concept of public health. I believe that among the changes of most significance are first, that citizens are beginning to realize that an effective nation-wide program of public health with federal support is a major factor in any national effort toward economic and social security, toward individual personal security, and toward the security of our major political and social institutions; for it prevents rather than alleviates much disability, dependency, and insecurity.

Second, and closely related, is the dawning of the idea among the public at large that it is financially important to prevent disease.

And finally, there is this great change in our own concept of our profession: Bankers may be at odds about how or when to stabilize our currency. Our greatest lawyers may disagree in fives and fours about the interpretation of the Constitution. Economists and industrialists may wrangle about the balancing of demand and production and the methods of preventing periodic unemployment. We have no part in their quarrels. *This one thing we do!* We are united in the objectives of our campaign against death and disease. We are sure of its place and importance in the growth of our nation. It is my firm belief, and yours, and by the straightforward doing of our task it can become the belief of the nation, that public health must be supported because of its ***human*** significance.

As President of the American Public Health Association during the coming year, it shall be my one thought that the Association may be serviceable to our purpose.

Experimental Staphylococcus Food Poisoning

A Study of the Growth of a Food Poisoning Staphylococcus and the Production of an Enterotoxic Substance in Bread and Meat

FLORENE C. KELLY AND G. M. DACK, PH.D., M.D.
Department of Hygiene and Bacteriology, University of Chicago, Chicago, Ill.

THE elaboration of an enterotoxic substance by the growth of staphylococci in foods is of significance as a public health problem. The importance of starch for the production of this food poisoning substance was pointed out by Jordan and Burrows.[1] These investigators found that bacteria of various kinds, *i.e.*, staphylococci, streptococci, *Proteus, Bact. coli, Bact. aerogenes,* and *Salmonella aertrycke,* grown under suitable conditions, especially on starch medium, were capable of producing a substance which caused gastrointestinal reactions in monkeys. By successive transfers on starch media, they further succeeded in restoring the enterotoxic property to strains which originally had produced that substance and had later failed in this capacity. Bacteria which had never possessed this characteristic before could produce the toxic material when grown on starch medium. A list of the foods involved in a number of naturally occurring outbreaks is given in Table I. From the table it is evident that many of the incriminated foods are rich in starch, but they also contain proteins. In Stone's [2] analysis of outbreaks occurring in California, he observed that "protein was the only consistent major ingredient of the food involved in every outbreak."

The purpose of the present study was to discover whether "food poisoning" staphylococci could grow and

TABLE I

STAPHYLOCOCCUS FOOD POISONING OUTBREAKS

Date	*Investigator(s)*	*Incriminated Food*
1914	Barber [4]	Milk
1929	Dack, Cary, Woolpert and Wiggers [5]	Sponge cake, portion of a custard filled cake
1930	Jordan [6]	Cheese
1930	Jordan, Dack [7]	Cream filled cake
1931	Jordan and Hall [8]	Chicken gravy
1931	Ramsey and Tracy [9]	Milk
1932	Buchanan and Ecker [10]	Custard pie
1932	Jordan and Burrows [11]	Cream filled cake
1932	Jordan and Burrows [11]	Cream filled eclairs and tarts
1932	Jordan and Burrows [11]	Custard filled doughnuts
1933	Jordan and Burrows [11]	Chocolate eclairs
1933	McBurney [12]	Chocolate eclairs
1934	Crabtree and Litterer [13]	Milk
1935	Corpening and Foxhall [14]	Custard filled cake
1935	Dack, Bowman and Harger [3]	Tongue sandwiches
1936	Health Department, New York City [15]	Cream puffs
1936	Shaughnessy and Grubb [16]	Milk

elaborate an enterotoxic substance in sandwiches, and to determine whether the bread or the sandwich filler or both were involved. This problem was suggested as a result of finding enormous numbers of yellow, hemolytic staphylococci in bread from meat sandwiches involved in an extensive food poisoning outbreak in Indianapolis in 1935.[3] These organisms were found in the bread and tongue filling of the sandwiches and in the stock tongue, but were absent in cheese, peanut butter, and jelly sandwiches. It was concluded that they had probably grown into the bread from the meat filling. The sandwiches had been made at night and given to workmen the next morning for their mid-day meal. Feeding experiments on rhesus monkeys proved the organism to be capable of producing an enterotoxic substance.

GROWTH IN BREAD AND MEAT

Using these " food poisoning " staphylococci, experiments were performed to test their ability to penetrate and grow in the bread of peanut butter, ham, tongue, and chicken sandwiches when they were introduced in these fillers.* In every instance the yellow, hemolytic staphylococci were recovered from portions of bread not in contact with the fillers after a few hours' incubation. Other staphylococci—stock cultures and several strains which were normally found as contaminants of the meats—were also tested. All these cocci penetrated into and grew in the bread. When different morphological types of bacteria (*Bact. coli, S. aertrycke, Bact. dysenteriae* (Flexner), *Bact. typhosum, B. niger, B. subtilis*) were introduced into ham and tongue sandwiches by inoculation of the meats, they were not recovered from the bread. However, certain of these rod forms grew into bread from chicken filling. Bread proved to be a favorable medium for all the bacteria tested when they were inoculated directly into this food. The " food poisoning " staphylococci did not distinguish themselves by exceeding the growth rates of other organisms.

Assuming that the salt content of the meats might be a factor, the growth of the " food poisoning " and other staphylococci, as well as the bacilli, was studied in salted and unsalted meats, *i.e.*, ham, beef tongue, and chicken. Staphylococci grew in salt meat which prohibited the increase of spore-forming and non-spore-forming rods. Salt seemed to have no more effect on the food poisoning strain than on other staphylococci. In the unsalted chicken all the bacteria increased, and there was no correlation between morphological type and relative growth. Sodium chloride was added to chicken to obtain 5, 10, and 20 per cent salt content, and again estimates of the numbers of organisms before and after incubation were made. The five strains of staphylococci tested (including the " food poisoning " organism) multiplied in 10 per cent sodium chloride, but none of the rod forms grew in this concentration of salt. Whenever salt-cured ham and tongue and canned chicken were analyzed previous to using them as experimental fillers, staphylococci were found to be the most common natural contaminants. They invariably over-grew other organisms in ham and tongue if others were present. The same was true in chicken at refrigeration temperature. The " food poisoning " staphylococci reproduced most rapidly at 37° C., but they were quite active at room temperature and even grew in the icebox after a lag period of more than 1 day. Given a start in warmth, they developed more rapidly

* Details of these experiments are to be found in a thesis by Florene C. Kelly submitted in partial fulfillment of the requirements for the degree of Master of Science in the Department of Hygiene and Bacteriology, University of Chicago, August, 1936.

at 8° C. Their ability to grow in the cold was further substantiated by the fact that agar slants and broth inoculated with these organisms showed scant growth after several days' refrigeration.

An attempt was made to determine whether the penetration of the staphylococci into the bread of sandwiches was accomplished by growth or by mechanical means. India ink and carmine particles, as well as killed, stained staphylococci, were used instead of actively growing staphylococci to compare the migration of living and lifeless particulate matter into the bread. Results of these experiments indicated that, after a distance of 1 cm., the penetration was due to active growth on the part of the bacteria. The influence of water content in bread was also investigated, and it was found that while there was plenty of moisture (37–43 per cent) in the average loaf, an increase to 51 per cent greatly accelerated the growth of the staphylococci. Certain sandwich fillings, for example lettuce, may considerably enhance the water content. The modern practice of wrapping sandwiches in waxed paper to prevent drying allowed more rapid growth, as shown when wrapped and unwrapped sandwiches were stored for more than 4 hours.

PRODUCTION OF ENTEROTOXIC SUBSTANCE IN BREAD AND MEAT

Having established the fact that the "food poisoning" staphylococci multiply in the bread of sandwiches as well as in the meat filling, experiments were undertaken to determine whether the enterotoxic substance resided in the meat, which originally contributed the organisms, or in the bread, a medium naturally rich in starch, or in both these components. Four human volunteers who were not subject to gastrointestinal upsets participated in feeding experiments.

In preparing the foods an attempt was made to imitate the natural conditions, especially that of moisture content. A saline suspension of the food poisoning organism which had been isolated from the bread of the Indianapolis tongue sandwich was swabbed over one side each of two slices of fresh bread. A sandwich was made by placing crisp lettuce between the two inoculated surfaces of the bread. It was then wrapped in waxed paper and incubated at 37° C. The meat used was sliced from a home baked ham. These slices, sufficient for one generous sandwich, were inoculated by swabbing one side of each piece, just as the bread had been treated. Lettuce was placed between the slices of ham, and this "sandwich" was wrapped and incubated as described for the bread and lettuce. After 5 hours' incubation one individual ate the bread sandwich, which contained 125,000,000 yellow staphylococci per gm., and the other volunteer ate the ham, containing 30,000,000 of these organisms per gm., with no ill effects.

Duplicate samples had been made when the first food was prepared. These samples were kept at 37° C. for 5 hours, refrigerated for 16 hours, and then reincubated for another 6 hours. Such time and temperature conditions more nearly simulated those to which the Indianapolis sandwiches had been subjected, although the latter were kept 18 hours at room temperature in warm weather. These foods were fed to the same volunteers, meat to one and bread to another. The person who ate 55 gm. of bread, containing 600,000,000 staphylococci per gm., experienced no reactions. On the other hand, 4¾ hours after eating 48 gm. of ham, containing 1,000,000,000 organisms per gm., the second individual developed a typical case of food poisoning (see Table II). A control sample of ham which was in-

cubated and refrigerated along with the food poisoning sample contained about 5,000,000 organisms per gm. These were staphylococci of various pigmentation, probably from the ham, together with typical soil and water, Gram-negative, non-spore-forming rods which might well have been introduced by the lettuce. Salmonella and dysentery organisms were not present. The test samples of bread and ham were not changed in appearance, odor, or taste by the enormous numbers of staphylococci growing in them.

Because there were more staphylococci in the ham than in the bread in the above experiment, the bread feedings were repeated on two more volunteers (a test and a control), and again on the same individual who ate the bread in the previous tests. This time larger amounts of the bread, containing more staphylococci, were eaten. The method of inoculation and preparation of the lettuce sandwiches and the incubation time and temperatures were the same as those used in the previous experiment. The control sandwich was treated exactly the same as the others, except that no staphylococci were introduced. The volunteer (No. 4) eating the uninoculated bread (control) and the one (No. 2) who had previously eaten the contaminated bread and upon whom this test was repeated, were not made ill, but the volunteer (No. 3) eating contaminated bread for the first time developed typical severe food poisoning symptoms and was confined to bed for 2 days (see Table II).

DISCUSSION

The report of the Indianapolis epidemic describes a situation in which food was prepared for a large number of persons about 18 hours before it was consumed. Foods incriminated in staphylococcus food poisoning outbreaks usually have a history which includes storage at room temperature. Under similar circumstances staphylococci entered and grew to huge numbers in the bread when they were

TABLE II

FEEDING OF HUMAN VOLUNTEERS WITH HAM OR BREAD IN WHICH A FOOD POISONING STRAIN (S2) OF STAPHYLOCOCCUS HAS GROWN

Volunteer No.	*Food Ingested in Grams*	*Staphylococci per Gram in Millions*	*Results*
1	Ham, 48	1,000	4¼ hours after eating, nausea, vomiting and diarrhea. Blood and mucus in stools toward end of acute illness. Acute symptoms lasting 3 hours.
2	Bread, 55	600	No effect
2	Bread, 75	1,000	No effect
3	Bread, 63	1,100	3¼ hours after eating, nausea, vomiting and diarrhea. Severe prostration. No blood or mucus in the stools. Acute symptoms of nausea and vomiting lasting over period of 13 hours.
4	Bread, 63	None *	No effect

* 8,000,000 soil and water bacteria (from lettuce) per gram

introduced in meat fillings of experimental sandwiches. Incidentally, when wrapped minced ham and mayonnaise sandwiches bought in drug stores were analyzed, they commonly showed enormous numbers of staphylococci and very few, if any, other types of bacteria. In no instance did any of the staphylococci cause perceptible changes in the appearance or odor of meats or bread, even when there were millions present. In view of the large numbers of staphylococci present in sandwiches purchased at food counters where they have been exposed to warm temperatures for hours, it would seem that such foods should more often be involved in food poisoning. Apparently these sandwiches are usually eaten with no untoward results. However, isolated cases of acute gastrointestinal upsets may be more common than is generally supposed. There is no way of estimating the incidence of such cases when physicians are not called and health officers are not notified. Only when an epidemic occurs is any investigation made or any record kept. It seems unlikely that the frequency of staphylococcus food poisoning can be fairly judged from such reports.

Dolman [17] suggests that the power to initiate gastrointestinal symptoms may be due to a metabolite produced by only a few strains of staphylococci growing under unusual circumstances. In our experiments, however, the "food poisoning" staphylococci needed no special conditions for the production of the toxic factor, except a long enough incubation period in the meat sandwich. Dolman bases his contention that certain strains of staphylococci produce the enterotoxic substance on experiments in which about 200 strains of pathogenic staphylococci were tested and in which only one, a strain obtained from Dr. Jordan, yielded a filtrate which caused gastrointestinal disturbances in human volunteers.

Our experience justifies the opinion that individual resistence to the enterotoxic substance may be extreme. This is well illustrated in the case of one volunteer who was not affected by eating bread in which the food poisoning strain of staphylococcus had grown, although a similar specimen of bread fed to another volunteer produced severe symptoms.

The material necessary for the production of the enterotoxic substance was supplied by both the bread and the ham. The fact that the staphylococci growing in ham could cause poisoning is in agreement with Stone's epidemiologic studies in California, where he observed that protein was the consistent major ingredient of food involved in every outbreak.[2] However, according to our findings, a food rich in protein is not essential; bread, a food naturally rich in starch and poor in proteins, supported the growth of the food poisoning staphylococci and the elaboration of their enterotoxic substance.

It is noteworthy that this staphyloccus has retained the property of producing such a toxic substance after having been cultivated on laboratory media for over a year.

SUMMARY

Experimental food poisoning has been produced in human volunteers by feeding either bread or meat in which a "food poisoning" strain of staphylococcus has grown. One individual who ate bread containing millions of these staphylococci developed severe food poisoning symptoms, suffering severe prostration lasting 13 hours. The same organism growing in ham caused similar characteristic reactions in a second volunteer. A third individual proved resistant on two occasions after eating bread containing millions of this "food poisoning" strain. Since both the bread and ham

served as favorable media for the production of an enterotoxic substance by the staphylococci, it is evident that the toxic factor in sandwiches which cause food poisoning may reside not only in the meat filling but also in the bread. When these yellow, hemolytic staphylococci were introduced into meat sandwiches by inoculation of the filler, they quickly invaded the bread, penetrating slices 1 cm. thick in a few hours. Bread is not a selective medium for this staphylococcus in the sense that only this type of organism can grow in bread and others cannot; nor is its rate of multiplication in bread greater than that of other bacteria. On the other hand, meat of high salt content proved selective for staphylococci in general. The food poisoning organism, along with other similar morphological types, thrived in a concentration of salt which prevented the growth of rod forms.

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Tribute to Dr. Park

ACCORDING to an ancient myth a mortal beloved of the gods was granted immortality, but eternal youth was not joined to the gift and he was left "to dwell in presence of immortal youth—immortal age beside immortal youth." That may be said to be the fate of Dr. Park, who yesterday retired from his long and remarkable official service in saving lives of others. If the years which he has added to their lives could be added to his own, he would indeed know the full fate of Tithonus. As it is, the people of this city, and not alone they, have reason for a gratitude outlasting generations, for the lengthening of the life of one generation has a cumulative value. It is a pleasure to think of him as toiling on in the seclusion of his private laboratory high above the city whose guarding has been his care for so many years.—Editorial. *New York Times*, Oct. 1, 1936.

Importance of the Supervisor in the Industrial Health Program*

LEVERETT D. BRISTOL, M.D., DR.P.H., F.A.P.H.A.

Health Director, American Telephone and Telegraph Company, New York, N. Y.

MUCH of the time and interest of the Industrial Hygiene Section of the American Public Health Association naturally has been given to the scientific, technical aspects of the causes and methods of control of specific occupational diseases. In the valuable discussions of such important subjects as silicosis, lead poisoning, the hazards of various other physical and chemical agents, to say nothing of such diseases as the common cold, pneumonia, and tuberculosis, and the mounting list of off-duty accidents, the important phases of industrial health administration and supervision should not be forgotten. Industrial hygiene cannot be advanced and occupational diseases and accidents cannot be controlled without an adequate set-up, both as regards program and personnel in each industrial organization.

The writer [1] has called attention at various times to the need for development of a well rounded industrial health program in each industry. At this time it would seem desirable to emphasize that one of the additional, outstanding needs in the administration or further extension of a health service, at least in the larger industrial concerns, is the setting up within the company of a completely organized personnel, and delegating the responsibility for such work. In many instances this will necessitate only the filling of certain supervisory "gaps" that exist at present. In other words, the personnel for a health service must be just as well organized in an industry as is the staff for any of the strictly operating activities, even though some of the same individuals may serve both purposes. At the same time, advisory services on health must be provided by special staff personnel, medical or otherwise, to assist the supervisors in the line organization, just as such services are available for technical engineering, manufacturing and operative problems.

In the organization of personnel for industrial health service, it is assumed that: (1) the larger the company the more specialization is possible and the greater is the necessity and opportunity for the division of positions and functions; and that (2) the smaller the company the more generalization is required and the greater is the necessity for the unification of positions and functions, and the need for possible assistance in industrial health work from local health departments or associations. The development of a practical and comprehensive program for health supervision of employees of smaller business concerns probably is

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the greatest unmet need in the whole realm of industrial health administration.

HEALTH RESPONSIBILITIES OF SUPERVISORS

The key person in the industrial health program should be the foreman or supervisor, just as the key person in the school health program is the classroom teacher. The ultimate responsibility for the health supervision of individual employees among general manufacturing and operating forces will rest with the supervisors, such as supervising foremen and foremen, chief clerks, local managers, chief operators, and other group leaders. Frequent personal contacts between a company medical department and individual workers are impracticable and often impossible. First line supervisors, however, have the opportunity to observe possible day-to-day changes in a fellow worker's physical appearance or mental attitude. The majority of supervisors are definitely interested in the welfare of their workers; it is not difficult, therefore, to get them to see that the health of their subordinates is a part of their job. The problem becomes one of developing effective supervisory methods for promoting health among employees.

The following suggestions cover the possible opportunities and responsibilities of supervisors in industry as regards the health problems of their fellow employees:

A. *To Stimulate the Ideals of Good Health*—Supervisors are acknowledged leaders. This is particularly true as regards the example set through their own conduct and attitude toward health, and in maintaining as healthy an environment as possible.

1. Their own habits of living, including recreational and outside activities, should be such as to stimulate ideals of health among their forces.

2. They should coöperate with the management in its effort to maintain such conditions as proper ventilation, heating, sanitary quarters, and hazard-free methods and equipment.

3. Their interest in company health activities should be active and genuine.

4. Their attitude toward frequent and unnecessary incidental absence on account of personal illness should be constructive and exemplified by their own good conduct in this respect.

5. In personally availing themselves of medical services provided by the company, through the regular lines of organization, they should help to build up confidence in such services.

6. They should refrain, at all times, from diagnosis or prognosis and should create on the part of their people a desire to seek proper medical advice when symptoms indicate the need of such. The confidences of individual employees should be carefully safeguarded.

B. *To Detect Indications of Potential Ill Health Among Employees*—

1. Evidences of minor ailments or warning signals such as continued colds, coughing, sneezing, headaches, indigestion, toothaches, inability to maintain a good posture, skin eruptions, abnormal skin color, noticeable loss of weight, shortness of breath, chronic fatigue, and any other conditions which obviously point to a "below par" or recently changed condition should be noted by the supervisor.

2. Poor quality of work, unsatisfactory mental attitude, friction with other employees, particularly supervisory people, which cannot be traced to the commonplace events of everyday working conditions, may indicate severe mental or nervous strain due to a multiplicity of causes which should be investigated.

3. Frequent absences from work reported as due to incidental ill health; repeated use of rest rooms; and

irritation at or inability to tolerate comfortably adequate and reasonable ventilation and proper heating arrangements should be recorded.

C. *To Take Proper Action With Regard to Unsatisfactory Conditions*—

1. Supervisors should advise employees to seek proper medical and dental attention for correction of minor defects.

2. Consultation and coöperation with available medical and dental advisers in individual cases should be arranged.

3. After determination has been made of the causes of repeated incidental absences, and the causes of poor mental attitude, preventive measures should be adopted.

4. Emergency action should be taken with reference to employees exposed to or exhibiting apparent symptoms of either occupational or communicable disease until the facts can be secured.

5. Observation of employee's attitude and appearance for some time after return to work following absence due to sickness should be a part of the supervisor's routine. The supervisor's interest and responsibility should be continuous and should not end when a worker has been referred to a physician or the company medical department.

HEALTH TRAINING OF SUPERVISORS

Modern industry requires that the supervisor must have a fairly complete understanding of the physical and mental needs of the individual workers under his charge, in addition to having a thorough knowledge of the job itself and of its possible disease or accident hazards. Thus, the subject of health must have a prominent place in any present or future program of supervisory training, and before any real progress can be made in individual health supervision, the supervisors themselves must be taught not only the facts of life and health, if they do not know these, but also how to impart such knowledge to others, and what their real responsibilities are as to the health of their working forces.

The health of the supervisor himself or herself is of paramount importance, not only as regards the quality of supervision, but also as it affects relationship to individual employees. The management officials of industrial organizations, where feasible, should provide thorough physical examinations of all supervisors and an adequate system for the follow-up and correction of defects and impairments which are found. Starting with the supervisor's own health and working environment is the best point of departure for the development of the entire industrial health program. Moreover, it is certain that unless the supervisor is "sold" on health, few if any of his or her fellow workers will become health-minded. As a matter of fact, the health program in industry must be developed from the top down, so far as officials and workers are concerned, rather than to attempt to push it from the bottom upward through the lines of organization.

Where practicable and feasible, all supervisors or prospective supervisors should be taught the principles of mental hygiene in order that they may form wise mental habits of their own, and that they in turn may be proper guides to their working forces. In this way the number of maladjusted supervisors and workers may be markedly reduced.

Supervisory training on health may be carried on through (1) short courses, conferences or periodic written instructions for supervisors already in service; or (2) systematic training and organized instruction on health in connection with job training for new employees and prospective supervisors. Supplying facilities, materials, and equipment for the use of supervisors in connection with their training and to enable them to carry on their duties as health counsellors to their workers, is

an important phase of management's responsibility.

As an example of one form of health training for supervisors, reference is made to a plan inaugurated a few years ago by the American Telephone and Telegraph Company and Associated Operating Companies in the Bell System in order to be of assistance to supervisors in fulfilling their opportunities as regards the health problems of employees. A series of so-called "Health Supervision Instructions," in mimeographed form, have been sent out at intervals of about a month for wide distribution to men and women supervisors in the various departments. These have covered such subjects as The Common Cold; Ventilation; Common Ailments, such as Headaches, Skin Disorders, Nervous Disorders, Indigestion, and Constipation; Healthful Vacations with emphasis on protection against sunburn, poison ivy, and so-called vacation typhoid; Mouth and Dental Hygiene; Food and Health; and Preventable Disease Control. Evidence is available which would seem to indicate that such periodic "Health Supervision Instructions" are of very great value to supervisory people in their daily tasks of dealing intimately with the personal health problems of individual workers; it is a method which apparently may fill an important place in the industrial health program, particularly when formal group or class health training is impossible.

In closing, it may be stated that if the working forces in industry are to become health-minded, the supervisory organization must assume the leadership. In carrying on his or her duties the supervisor needs the support and assistance of operating management and of the health specialists, such as doctors, dentists, engineers, nurses, and nutritionists, but the results achieved will depend largely upon the supervisor's own efforts. In former times health was neither an industrial subject nor objective; the manufacturing or operating supervisor concerned himself or herself with job routine only and was not supposed to assume any responsibility for the health status or safety of fellow workers. At the present time, with industrial health becoming something more than control of specific occupational hazards, personal health guidance of working forces should become an essential part of supervisory routine. The industrial supervisor of the future must have a dual responsibility—that toward the actual work at hand and that toward and with the worker supervised; he will promote not only industrial safety, but industrial health as well!

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Industrial Hygiene Activities in the United States*

R. R. SAYERS, M.D., F.A.P.H.A., AND J. J. BLOOMFIELD, F.A.P.H.A.
Senior Surgeon, and P. A. Sanitary Engineer, U. S. Public Health Service, Washington, D. C.

THE United States Census for 1930 shows that, at that time, there were approximately 49 million persons gainfully employed in the United States. Of this number, manufacturing, mechanical and mineral industries accounted for nearly 15 million workers. If the term " industrial hygiene " means the protection of the health of the worker, it is at once apparent that it is a major problem in public health.

More important than specific occupational diseases associated with the industrial environment is the fact that the incidence of other diseases, such as tuberculosis, pneumonia, and degenerative conditions, are greater among the industrial workers than the general population. It has also been shown that the life expectancy of the industrial worker is less than that of the nonindustrial worker.

In recent years large industrial establishments have contributed much toward the protection of the health of their workers. However, as nearly 90 per cent of the plants in the United States employ less than 100 persons, many establishments are not prepared to handle effectively the problem of industrial hygiene alone. It would seem, therefore, that the protection of the health of our workers is indeed an important health function and one which can be handled best through a governmental agency, such as a state or local department of health coöperating with the employers and workers.

PRESENT TRENDS IN INDUSTRIAL HYGIENE

Responsibility for safeguarding the health of industrial workers rests chiefly with state and local governments. The federal government's agencies concerned with industrial hygiene are engaged in collection and dissemination of information, conducting field studies, laboratory research, and protection of the health of federal employees.

The branches of the federal government engaged in this field, together with their respective activities, are as follows:

1. The Department of Labor, through its Children's Bureau, Women's Bureau, Bureau of Labor Statistics, and the recently created Division of Labor Standards, confines its activities to the collection of statistics on accidents, occupational diseases, wages, hours of labor, employment trends, and allied subjects. Through coöperation with the several states, the Department of Labor attempts to secure uniform laws, regulations, and practices for the protection of employed persons.

2. Studies in the mineral and allied in-

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dustries have been conducted for many years by the Department of the Interior, Bureau of Mines, for the purpose of promoting the health and safety of workers employed in these industries.

3. In the Treasury Department, the Public Health Service, Office of Industrial Hygiene and Sanitation, conducts studies concerned with the health of industrial workers. Particular attention has been given to industrial dusts, specific industrial poisons (notably lead, radium, benzol, and carbon monoxide), dermatoses, ventilation, illumination, and industrial morbidity and mortality. Investigations of both field and laboratory type are made. These are designed to yield information regarding the extent and nature of a particular hazard throughout industry and to devise control methods. The investigations are made in coöperation with state and local authorities and the data obtained serve to guide industrial, as well as governmental establishments, in coping with occupational diseases.

On behalf of state and territorial health officers, the Public Health Service has been instrumental in bringing about agreements with the chemical industry beneficial to the health of those working in the industry, and also to those using its products. The agreements cover such poisonous materials as tetraethyl lead, methanol, liquid chlorinated hydrocarbons, carbon tetrachloride, carbon disulphide, and aniline oil. Standards of health and safety are developed through the coöperative efforts of the Public Health Service, Bureau of Mines, Department of Labor, and American Standards Association.

Compensation of civilian federal employees for injuries or diseases proximately caused by conditions of employment is administered by the independent Employees Compensation Commission. Medical personnel needed for administrative purposes in this work are provided by the Public Health Service.

Except for federal and territorial employees, legal protection of the industrially employed is a responsibility reserved by state and local governments. Prior to this year, most states have concerned themselves chiefly with matters of safety, sanitation, employment of women and children, and compensation of employees following accidents. All but two states have workmen's compensation legislation for accidental injuries, and approximately 15 states provide compensation for one or more occupational diseases. Administratively, the states have placed enforcement of occupational disease legislation in various departments. Several states require reporting of occupational diseases.

As will be developed in this discussion, the past year has seen a rapid growth in the establishment of industrial hygiene units in health departments. There has also been a realization, upon the part of those responsible for the administration of occupational disease units, that a coöperative program among the various governmental agencies involved is desirable for effective progress in this important phase of public health.

So far a brief summary has been presented of the activities of various governmental or official agencies. An increasing amount of interest in both the study and control aspects of occupational diseases has also been manifested by nonofficial agencies, particularly large industrial establishments, insurance companies, as well as universities and national organizations directly interested in public health, notably, the American Public Health Association, the American Medical Association, the National Safety Council, and the National Tuberculosis Association. Not only have industrial establishments shown a great deal of interest in this subject, and in many instances inaugurated programs of industrial hygiene, but there has also been an awakening on the part of the worker himself to the need for coöperation in the control of industrial health hazards.

In many of the studies conducted by the Public Health Service and other agencies, the workers have shown an excellent coöperative spirit and have submitted themselves for complete medical examinations in order that the etiology and control of industrial health hazards might be determined by scientific means.

Students of the industrial hygiene and sanitation problem have long realized that actual progress in this field could be made only through a concerted effort by both state and local governments. Although many state health officials realized that industrial hygiene was an integral part of their health activities, they were unable to cope effectively with this problem, due to the lack of funds and interest on the part of those persons most directly concerned. For many years the Conference of State and Provincial Health Authorities of North America have sustained interest in industrial hygiene through their Committee on Industrial Hygiene. Passage of the Social Security Act at once made necessary funds available for the extension of this phase of public health in various states. Accordingly, the Public Health Service, in coöperation with the Industrial Hygiene Committee of the Conference of State and Provincial Health Authorities inaugurated a program designed for the purpose of establishing active industrial hygiene units in the health departments of various industrial states.

TABLE I

CLASSIFICATION OF STATES ACCORDING TO THE POPULATION AND NUMBER OF GAINFUL WORKERS IN EACH STATE, AND NUMBER AND PER CENT IN MANUFACTURING, MECHANICAL, AND MINERAL INDUSTRIES, U. S. CENSUS, 1930

State	*Total Population*	*No. of Gainful Workers*	*Number of Gainful Workers in Manufacturing, Mechanical and Mineral Industries*	*Per Cent of Gainful Workers in These Industries*
New York	12,588,066	5,523,085	1,995,924	36.0
Pennsylvania	9,631,350	3,722,428	1,796,944	48.2
Illinois	7,630,654	3,184,875	1,164,979	36.5
Ohio	6,646,697	2,615,938	1,094,650	41.8
Michigan	4,842,325	1,927,498	860,164	44.6
Massachusetts	4,249,614	1,814,422	840,300	46.2
New Jersey	4,041,334	1,712,125	741,299	43.3
California	5,677,251	2,500,969	673,646	27.0
Indiana	3,238,503	1,251,177	464,549	37.3
Texas	5,824,715	2,207,118	395,802	18.0
Missouri	3,629,367	1,458,054	390,399	26.8
Wisconsin	2,939,006	1,129,546	380,229	33.6
Connecticut	1,606,903	677,292	337,445	49.8
North Carolina	3,170,276	1,141,129	289,917	25.4
West Virginia	1,729,205	570,459	242,115	42.5
Georgia	2,908,506	1,162,174	240,989	20.7
Maryland	1,631,526	672,906	228,599	34.0
Washington	1,563,396	664,813	181,765	27.4
Rhode Island	687,497	297,168	164,304	55.2
Maine	797,423	308,617	104,201	33.5
New Hampshire	465,293	192,671	89,461	43.8
Arizona	435,573	165,304	45,811	27.7
Vermont	359,611	141,190	42,851	28.4
Delaware	238,380	98,104	35,348	36.0

TABLE II

CLASSIFICATION OF STATES ACCORDING TO THE POPULATION AND NUMBER OF GAINFUL WORKERS IN EACH STATE, AND NUMBER AND PER CENT IN MANUFACTURING, MECHANICAL, AND MINERAL INDUSTRIES, U. S. CENSUS, 1930

State	Total Population	No. of Gainful Workers	Number of Gainful Workers in Manufacturing, Mechanical and Mineral Industries	Per Cent of Gainful Workers in These Industries
Virginia	2,421,851	880,276	221,539	25.1
Alabama	2,646,248	1,026,320	220,378	21.4
Kentucky	2,614,589	907,166	220,233	24.0
Tennessee	2,616,556	958,209	213,077	22.2
Minnesota	2,563,953	992,847	210,299	21.2
Oklahoma	2,396,040	828,029	172,163	20.8
Iowa	2,470,939	912,832	167,147	18.3
Louisiana	2,101,593	815,725	156,030	19.1
South Carolina	1,738,765	687,721	146,344	21.3
Kansas	1,880,999	694,276	132,662	19.0
Florida	1,468,211	599,010	131,480	22.0
Oregon	953,786	409,680	102,125	25.0
Colorado	1,035,791	402,894	88,830	22.2
Arkansas	1,854,482	667,870	83,560	13.1
Mississippi	2,009,821	844,887	79,318	9.4
Nebraska	1,377,963	507,022	71,517	14.1
Utah	507,847	170,013	44,977	26.5
Montana	537,606	216,471	44,637	20.6
Idaho	445,032	162,223	27,934	17.2
South Dakota	692,849	247,678	24,207	9.8
New Mexico	423,317	142,866	23,931	16.7
Wyoming	225,565	92,451	19,046	20.7
North Dakota	680,845	240,317	18,095	7.5
Nevada	91,058	42,885	11,776	27.4

The following discussion presents certain information on what has been accomplished to date in establishing industrial hygiene units in the various state and local health departments.

Tables I and II represent an attempt to classify the states according to population and the number of gainful workers in each state, as well as the number and per cent in manufacturing, mechanical, and mineral industries. The order in which these states are presented is based on the number of persons employed in these three industries. However, in order to take into consideration those states having small but highly industrialized populations, there has been included in Table I a list of these smaller states.

A study of Tables I and II shows that approximately 49 million persons were gainfully employed at the time of the last decennial census. Of this number, manufacturing, mechanical, and mineral industries accounted for 15 million workers. The occupational exposures known to exist among this large group of workers embrace more than 500 poisonous materials and hazardous conditions which may be detrimental to health. In fact, as previously stated, numerous studies of the health of industrial workers which have been made by the Public Health Service and other agencies show that certain of these workers experience high morbidity and mortality rates and that the industrial occupation is an

important factor in the causation of excessive illness and mortality rates.

Experience has indicated that, in order to carry out an effective program of industrial hygiene, certain minimum activities are essential. For the sake of brevity, these activities have been divided into administration and field investigations, as presented below.

ADMINISTRATION

1. Arrange for securing and investigating reports of occupational diseases to the state department of health.
2. Secure reports of all diseases for which sick benefits are paid by industrial sick benefit organizations in the state department of health.
3. Coöperate and provide a source of information for other state departments, such as industry, labor, insurance, and medical interests, or any agency interested in industrial hygiene.
4. Educational program to acquaint industry and various groups interested as to importance of the problem.

FIELD INVESTIGATIONS

1. Preliminary survey to determine the scope and nature of the industrial hygiene problems in the state.
2. Surveys by field personnel of plant conditions causing or suspected of causing occupational diseases, in order that the department may advise or make recommendations for the control of existing or potential health hazards.

It is believed that the functions given herein are sufficiently clear to require no further elucidation. Although there may be many other activities in which an industrial hygiene unit may take part, it is felt that the tentative program just outlined should serve as a starting basis.

The outline map which follows indicates graphically the progress which has been made by the Public Health Service in the establishment of industrial hygiene units in health departments.

Prior to 1936 there were only 5 state departments of health conducting industrial hygiene activities, these activities being of a limited nature. This number has been increased to 17, and it is felt that many more states will soon include industrial hygiene as one of their functions.

INDUSTRIAL HYGIENE UNITS IN THE UNITED STATES

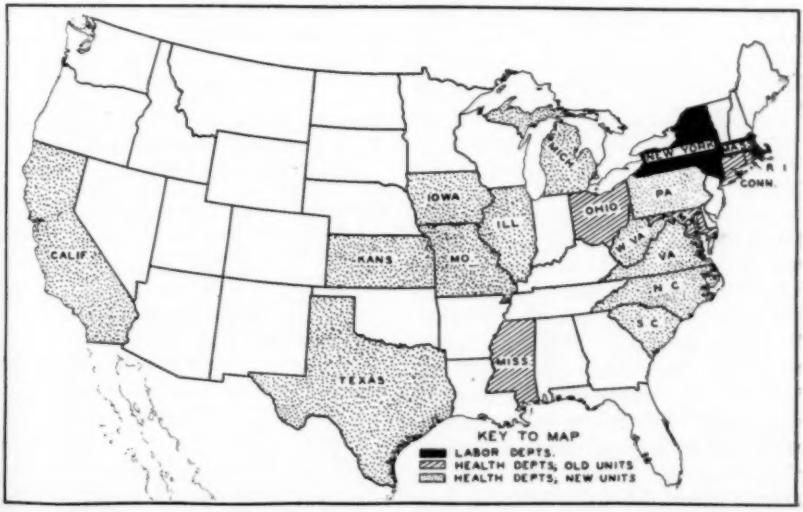

TABLE III

INDUSTRIAL HYGIENE ACTIVITIES IN CERTAIN STATE HEALTH DEPARTMENTS

State	Number of Gainful Workers	Annual Budget: Prior to 2/1/36	Annual Budget: Present or Proposed: Total	Annual Budget: Present or Proposed: Per Worker
California	2,500,969	.....	$7,720	0.003
Connecticut	677,292	$11,927	24,295	0.031
Illinois	3,184,875	.....	28,250	0.009
Iowa	912,832	.....	9,600	0.010
Kansas	694,276	.....	9,600	0.014
Maryland	672,906	7,000	12,000	0.018
Michigan	1,927,498	.....	42,400	0.022
Mississippi	844,887	4,500	6,200	0.007
Missouri	1,458,054	.....	16,680	0.011
North Carolina	1,141,129	.....	27,500	0.024
Ohio	2,615,938	5,200	33,200	0.013
Pennsylvania	3,722,428	.....	40,220	0.011
Rhode Island	297,168	2,250	23,000	0.077
South Carolina	687,721	.....	10,800	0.016
Texas	2,207,118	.....	23,100	0.010
Virginia	880,276	.....	14,900	0.017
West Virginia	570,459	.....	19,000	0.033
Total	24,995,826	$30,877	$348,465	0.014

1. The States of New York and Massachusetts have Industrial Hygiene Divisions in the Labor Department, so that in all, 32,333,333 gainful workers are provided with industrial hygiene facilities; there are still 16,255,397 workers who are not provided with industrial hygiene services.
2. In 1934, New York State alone paid out $531,808 in compensation for occupational diseases.

Perhaps a better conception of the growth in this field may be had from a study of Table III. Prior to the passage of the Social Security Act, only $30,877 was being expended by the 5 states carrying on industrial hygiene in health departments. The latest budgets for industrial hygiene in the 17 states and cities carrying on this type of activity are now approximately $350,000, or more than 10 times the amount expended heretofore. However, even this increased expenditure shows a per worker cost of only 14 mills, an amount rather negligible when considered in the light of expenditures for other public health activities. When we realize that New York State alone paid out $531,808 in compensation during the year 1934 for occupational diseases which are in a large measure preventable, then we know that even our present growth for this activity is none too great. A further study of Table III shows that nearly 33 million gainful workers are now being provided with industrial hygiene facilities, leaving approximately 16 million persons

TABLE IV

MINIMUM REQUIREMENTS FOR STATES HAVING A SMALLER INDUSTRIAL POPULATION

(¼ million or less industrial workers)

Personnel	*Cost*
1 Physician Director	$5,000–$6,000
1 Industrial Hygiene Engineer (chemical engineer)	3,000– 3,600
1 Chemical Engineer (laboratory and field)	2,400– 3,000
1 Stenographer	1,200– 1,500
Equipment	4,800
Supplies	1,000
Travel	2,000
Total cost:	$19,400–$21,900

for whom no such provisions have as yet been made.

Tables IV, V and VI present the minimum requirements for various states in the way of personnel, equipment, and annual expenditures. These lists should be considered as very flexible and are to be modified with the particular needs of each locality. They are offered merely as a working basis for those states about to inaugurate industrial hygiene programs.

One of the serious problems which confronted the Public Health Service in connection with establishing industrial hygiene units in state departments of health was the shortage of trained personnel. It is well recognized that the practice of industrial hygiene and sanitation requires highly specialized training. A doctor or engineer undertaking this type of work should not only have a thorough grounding in public health work, but should also be well trained in such subjects as ventilation, illumination, industrial toxicology, dust determinations, and various other specialized subjects pertaining to industrial health. Perhaps it may be well to consider the duties and qualifications that have been suggested by the Industrial Hygiene Committee of the Conference of State and Provincial Health Authorities of North America for the chief medical and engineering personnel of such a unit. According to this committee, the duties of the medical director of such a unit are given as:

> Under administrative direction, to plan, correlate, and direct the activities of the Bureau of Occupational Diseases of the Department of Health; and to do related work as required.

For minimum qualifications this committee gave the following requirements:

TABLE V

MINIMUM REQUIREMENTS FOR STATES HAVING LARGE INDUSTRIAL POPULATIONS

Personnel	*Cost*
1 Physician Director	$5,000– $7,500
1 Assistant Physician	4,500– 6,000
1 Industrial Hygiene Engineer (chemical engineer)	3,600– 5,000
1 Industrial Hygiene Engineer (ventilation engineer)	3,600– 5,000
1 Stenographer	1,200– 1,500
Equipment	
(A laboratory for carrying on industrial hygiene studies by the Engineering Section of the Bureau)	2,500
Physician's Equipment	
(X-ray, microscope, etc.)	4,000
Supplies	1,500
Travel	3,000
Total cost:	$28,900-$36,000

TABLE VI

CONTEMPLATED PERSONNEL AND BUDGET FOR A LARGE INDUSTRIAL STATE

Personnel	*Cost*	
1 Physician Director	$7,500	
1 Chief Industrial Hygiene Engineer	6,000	
3 Physicians, at $5,000	15,000	
1 Ventilation Engineer	4,000	
3 Chemical Engineers, at $3,000	9,000	
1 Chief Chemist	4,000	
1 Assistant Chemist	2,500	
1 Statistician	3,500	
1 Nurse	2,000	
2 Medical Technicians, at $2,000	4,000	
2 Engineering Technicians, at $1,500	3,000	
5 Stenographers, at $1,500	7,500	
Total salaries:		$68,000
Laboratory Supplies and Equipment		
Equipment	$7,500	
Supplies	2,500	
Travel	7,500	
Miscellaneous	1,500	
Total:		19,000
Grand Total:		$87,000

Graduation in medicine from an institution of recognized standing, preferably with specialization in industrial hygiene and training in public health, a license to practise medicine, and 2 years' graduate work in industrial hygiene including ventilation, illumination, industrial toxicology, and methods of dust determinations, and 3 years' experience in public health work in relation to effect of industrial environment on health—at least 1 of which shall have been in directive capacity, or any equivalent combination of education and experience; advanced knowledge of the principles and practices of medicine and surgery, with particular reference to the control and elimination of industrial hazards and occupational diseases; especial ability to diagnose occupational diseases and to ascertain the specific causes of such diseases; ability to make comprehensive analyses of health conditions in industries, to draw adequate conclusions, and to prepare clear and informative reports for publication; initiative; tact; good judgment; and good address.

The duties of the industrial hygienist or industrial hygiene engineer were given as—

To determine, under direction, the necessity of making specific studies of particular industrial conditions; to conduct surveys and supervise studies of factory conditions predisposing to occupational diseases; to prepare comprehensive reports of findings with recommendations for control of occupational disease hazards; to supervise the work of field and laboratory workers; and to do related work as required.

The minimum qualifications called for—

Graduation in chemical engineering, with 2 years' graduate work in industrial hygiene: to include ventilation, illumination, industrial toxicology, dust determinations; 3 years' experience in surveys and studies of industrial conditions for occupational disease control; or any equivalent combination of education and experience; familiarity with materials and processes used in industry; thorough knowledge of physical and chemical procedures for necessary determination of occupational disease hazards and of methods of control of these hazards; ability to recognize industrial processes and materials presenting potential occupational disease hazards; ability to establish contacts with plant executives; ability to enlist coöperation of plant executives, foremen and laborers; initiative; tact; good judgment; and good address.

During the next few years personnel trained in industrial hygiene and sanitation will be more and more in demand. The various universities engaged in teaching public health should give serious consideration to the inclusion in their curricula of rather comprehensive courses in industrial hygiene and sanitation. As a matter of fact, some of our leading universities are already cognizant of this need and are now planning to give intensive courses in industrial hygiene, either as part of their medical curriculum or to include such courses in their schools of public health and hygiene.

To overcome the present lack of trained personnel in the 17 states which have just inaugurated industrial hygiene programs, the Public Health Service has evolved the following procedure: Since one of the prerequisites for a career in industrial hygiene is that an individual should have a background of public health, it has been suggested to the various state health officers that they consider transferring one of their physicians and one of their sanitary engineers to this new activity, and by giving them an intensive course in industrial hygiene, help them to undertake this new field of endeavor. This particular plan also has an advantage in that the individual is a resident of the state, and in all probability is thoroughly familiar with its industries, and the policies of the state department of health and other state agencies. Such a procedure has been especially successful in some of the states where industrial hygiene units have already been established.

In order to introduce these individuals to industrial hygiene procedure, the Public Health Service conducted a seminar for physicians and engineers from state health departments. The

attendants at this seminar included 33 physicians and engineers from 17 states. It is realized, of course, that 1 month's lectures and laboratory demonstrations only served to introduce these students to the subject of industrial hygiene. Therefore, it is planned to supplement this course by actual aid to the various states, in order that the personnel may obtain advice and training under practical working conditions. It is proposed that demonstrations in industrial hygiene may be conducted in various industries in the states. One such demonstration has already been completed in North Carolina, where the Public Health Service, in coöperation with the new Industrial Hygiene Division of that state, conducted a study of asbestosis in certain asbestos textile plants. Similar aid is being given to the State of West Virginia, and it is hoped to extend such service to other states which may call on the Public Health Service for aid in initiating this new activity. With such a plan, it is possible to perform a dual function; namely, the Office of Industrial Hygiene and Sanitation of the Public Health Service will be conducting field studies among the industrial workers, designed for the purpose of yielding information on the extent, nature, and control of certain hazards, and at the same time will be aiding the state personnel in obtaining first-hand training in the conduct of industrial hygiene activities.

FUTURE DEVELOPMENTS IN INDUSTRIAL HYGIENE

The past few years have shown a tremendous interest and activity on the part of the health departments and other agencies in the field of industrial hygiene and a realization that, in order to improve the health of the worker, a coöperative effort should be made by all those responsible for safeguarding the health of the working population. During the past year the number of state and city departments of health carrying on an effective program in industrial hygiene has increased to the point where nearly two-thirds of the working population are receiving some consideration on industrial health problems. Present trends indicate that more states will gradually undertake such work, rendering effective service to industry, labor, and other agencies interested in such a program. It is realized, of course, that this development will necessarily be slow, but there is no reason to feel that it will ever retrogress. Industrial hygiene has come to stay, and should be one of the most active fields of public health in the near future. The Public Health Service will be glad to have the various states look to it for guidance and assistance. As an aid to such a program, members attending the recent seminar unanimously voted that a conference of official industrial hygiene workers be formed. The objects of this conference would be to promote industrial hygiene and sanitation in all its aspects and phases, to coördinate industrial hygiene and sanitation activities in official federal, state, and local and territorial organizations; to encourage interchange of experience among industrial hygiene workers in official administrative positions; to collect and make accessible to all industrial hygiene workers in official administrative positions such information and data as might be of assistance to them in the proper fulfillment of their duties. Plans for such a conference are now under way.

With the increased service by the state agencies to industry in solving the manifold problems of industrial hygiene, the Public Health Service should be able to devote more of its time to much needed research in the field of industrial toxicology, and to those field studies of a broader nature designed

to evolve standards to be applied by local governmental agencies. The combined efforts of the federal and local governments should bring about a definite improvement in the health of the industrial worker.

What Is Scarlet Fever?

DURING recent years bacteriologists have been very active in their efforts to throw light on the nature of the infection in scarlet fever and allied diseases. The great increase in new forms and types of streptococci, and the ingenuity displayed in their nomenclature—well described by Topley and Wilson as a " riot of christening "—are sufficient to confuse the physician who is faced with the actual clinical and administrative problems connected with these diseases. There is conclusive evidence that uncomplicated scarlet fever is due to infection by one or other of many different strains of the haemolytic streptococcus; but organisms with the same morphological and biochemical reactions are to be found, not only in widely varying forms of disease and in those who have recovered from these diseases, but also in anything up to 36 per cent of apparently healthy persons.

The Dick test and the Schultz-Charlton reaction may be useful in diagnosis; but they are of limited value, and least reliable in the very type of cases in which their help is most needed. On what, then, is the clinician to rely in trying to arrive at a diagnosis?

Medical practitioners have always regarded the typical scarlatiniform punctate erythematous rash as the diagnostic feature *par excellence*, and subsequent consistent desquamation as clinching the diagnosis; but experienced observers have always been baffled to find patients with typical rash and strawberry tongue who did not peel, and other patients with typical peeling who have had no previous rash.

In a recent bacteriological investigation of 100 suspicious cases, Brown and Allison found that the incidence of rashes was almost equal in the bacteriologically positive and negative cases; that evidence from the tongue, temperature, and pulse-rate was of no diagnostic value; and that only 40 per cent of the positive cases eventually showed consistent desquamation.

Even after the most thorough clinical and bacteriological investigation, the diagnosis of scarlet fever may be beset with extreme difficulty; and with the mild type of the disease now prevalent it is recognized to be one of the most difficult to diagnose of all infectious diseases. It is the busy general medical practitioner, however—with little or no time and facilities for bacteriological and serological tests—who has the responsibility of not only diagnosing but notifying a condition which cannot be regarded as a specific epidemiological entity. It is, therefore, not a matter for surprise that in a large percentage of patients, notified and admitted to hospital, the diagnosis of scarlet fever is not confirmed—Brown and Allison estimate that 39 per cent of doubtful cases of scarlet fever are not infectious and do not require hospital treatment of any kind. —Andrew W. Forrest, M.A., M.D., Ch.B. (Edin.), D.P.H., Scarlet Fever Control on Modern Lines. *Pub. Health*, 49, 12:412–13 (Sept.), 1936.

Active Immunization Against Whooping Cough*†

Interim Report of the Cleveland Experience

JAMES A. DOULL, M.D., DR.P.H., F.A.P.H.A.,
GERALD S. SHIBLEY, M.D., AND JOSEPH E. McCLELLAND, M.D.
Professor of Hygiene and Public Health; Associate Clinical Professor of Medicine; and Senior Clinical Instructor in Pediatrics; School of Medicine, Western Reserve University, Cleveland, Ohio

RECENT reports of a favorable nature, especially those of Madsen,[1] of Sauer,[2, 3, 4] and of Kendrick and Eldering,[5] have revived interest in active immunization against whooping cough. The antigen used by these investigators is prepared from freshly isolated strains of *H. pertussis*, whereas previous workers were not consistent in this respect. There is experimental support for this procedure. When first isolated on an optimal medium, all strains of *H. pertussis* apparently belong to a single serological type, as shown by Bordet and Sleeswyk.[6] On cultivation, particularly on media not containing blood, variation takes place, the original smooth type giving rise to colonies rougher in appearance and altered in virulence and antigenic potency.

Leslie and Gardner[7] recognize gradation through 4 phases, Phase IV being the final rough, avirulent form. Shibley and Hoelscher,[8] and Toomey, *et al.*,[9] distinguish sharply between S and R forms but are unable to differentiate 4 phases. The former were successful in maintaining S strains over a prolonged period on a medium rich in human blood. Using an S strain Shibley[10] produced in a chimpanzee an attack which at least closely simulated human whooping cough, whereas R strains were apparently innocuous. Such evidence clearly indicates the exclusive use of S strains in prophylactic inoculation and, accepting the promising nature of recent studies, offers a reasonable explanation of the failures of the past.

Sauer's observations led him to conclude that immunity is rather slowly built up and that it persists for a period of months, at least. Madsen[1] has published two observations from the Färoe Islands. In the first, there was no material difference in morbidity from whooping cough as between inoculated and controls but the former had a lower mortality; in the second report, the inoculated had a definitely

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* Read before the Epidemiology Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, October 22, 1936.

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lower incidence. In the first series, some time had elapsed between the inoculations and the occurrence of whooping cough in the area; in the second, the children were treated shortly before an epidemic. The suggested explanation is that immunity may be built up rapidly, giving protection against attack for a short time, but is gradually lost; sufficient remains, however, after a period of months, to lower substantially the case fatality.

The frequency of whooping cough, and its importance as a cause of mortality among younger children, render it highly desirable that any promising prophylactic measure should be thoroughly investigated by several observers. This statement may be made without criticism of the evidence adduced by any of the authors cited, for it is not a simple matter to establish, beyond reasonable doubt, the value of any such measure; on the contrary, it may be a matter of great difficulty. Certain aspects of the problem may be briefly mentioned.

The first essential, obviously, is that the vaccine shall be prepared with care and skill. At present, the criteria for recognition of the S form of *H. pertussis* are agreed upon quite definitely and it is unlikely that differences in results, as between qualified bacteriologists, would be due to the use of strains varying materially in specific antigenic power.

The greater difficulties are those of the field—clinical and epidemiological —rather than bacteriological. Whooping cough is not always easy to recognize with certainty, particularly under field conditions. If the presence of *H. pertussis* be demanded, plates must be exposed during a cough, which is not readily induced in all instances, especially in infants. Notification is delayed, frequently, and this may result in failure to secure a positive culture. However, it is at least questionable whether the presence of *H. pertussis* in the absence, say, of characteristic whooping, should be regarded as diagnostic. It cannot be taken as established that *H. pertussis* may not be present in healthy individuals, although accumulating evidence indicates that this may be true. In each patient, all evidence must be taken into account, notably the result of culture, the blood picture, the nature of the cough, and the occurrence of whooping. Recent occurrence of typical attacks in other members of the family furnishes corroborative evidence, of special significance in periods of low incidence.

Granted that bacteriologic and diagnostic difficulties can be overcome, it is necessary to administer the vaccine to a sufficient number of children; to hold an equivalent group of controls, and to establish and maintain the necessary machinery to detect the occurrence of whooping cough in both groups, with as few errors of omission as possible, and without prejudice either to inoculated or to controls. In actual practice, it is probable that no ideal experiment of this kind can ever be carried out, certainly not in the general population. Plans may be made carefully, those for inoculation being selected at random from an available universe, but many parents will refuse permission, which may or may not affect the validity of the sample. It is obvious that many refusals may disturb the age distribution of the sample to be inoculated if parents should prove more willing to have older children treated than younger. Perhaps the most important disturbing factor which may enter in this way is a possible geographic concentration of refusals.

On the favorable side, in approaching the problem, is the fact that whooping cough is so frequent in an urban population that the number to be included in such an experiment need not be large, granted an available population

of infants * or young children and a reasonable period of observation. This assumes that the crucial test is to be a measure of the occurrence or non-occurrence of whooping cough. If, however, as Madsen [1] apparently concludes, the disease may not be prevented but only diminished in severity by the vaccine, a considerable number of cases is necessary, as the case fatality of whooping cough may be extremely low and other indices of severity may not be satisfactory.

Considering only the question of incidence, the number to be included may be estimated as follows: Based upon experience in Baltimore over a period of years, the proportion of children expected to have whooping cough between the ages of 6 and 18 months is between 8 and 10 per cent. If 8 per cent be assumed, and if the vaccine be 75 per cent effective, an ample negative deviation, from the point of view of differences in random sampling, may be expected in 1 year, with from 200 to 300 children in each group, as shown in Table I.

METHODS ADOPTED IN THE CLEVELAND STUDY

In the study to be described it was considered that sufficient data were not at hand for the area of operation to justify a rigid assumption of an 8 per cent attack rate. It was decided, therefore, to enroll 500 children in each group, the maximum number which could be kept under reasonably close supervision by 2 nurses. To increase the likelihood of attack, it was planned to include only those children belonging to families in which there was known to be at least 1 older child which had not had the disease.

Preparation of vaccine—Five strains were used, all of which had been recently recovered from patients with whooping cough. All were hemolytic in 30 per cent human blood agar and were serologically and cataphoretically in Phase I. Two of these strains were sent to Dr. J. Howard Brown, who reported them as typical of recently isolated *H. pertussis*. The method used in preparation of vaccine was as follows:

The organisms were grown on modified Bordet-Gengou medium, prepared according to the method of Lawson and Mueller,[11] except that sterilization was done by autoclave with 15 lb. pressure at 120° C. for 20 minutes instead of by the Arnold sterilizer. Defibrinated or citrated human blood was used, in 25 to 35 per cent concentration. After being incubated for 48 hours at 37° C., the colonies were carefully scraped off, washed once with sterile distilled water, and resuspended in 0.85 per cent sodium chloride

TABLE I

PROBABALITY (P.) OF A NEGATIVE DEVIATION OF 75 PER CENT, OR GREATER, IN SAMPLES WITH CHANCE OF ATTACK (p) = .08

No. in Sample	Expected		S.D. of Diff.	Diff. / S.D.	P.*
	Controls	Inoculated			
50	4	1	2.16	1.39	.082
100	8	2	3.05	1.97	.024
200	16	4	4.32	2.79	.003
300	24	6	5.29	3.40	.0003
400	32	8	6.11	3.93	.00004
500	40	10	6.83	4.39	.000006

* Based on half the area of the normal curve (from Pearson's Tables for Biometricians and Statisticians).

* Madsen [1] does not recommend inoculation of infants under 1 month of age. In his series of newborn children, 2 deaths followed inoculation.

solution to which 0.5 per cent phenol had been added. The suspension was then refrigerated for 4 to 5 days, tested for sterility, and standardized to contain approximately 10 billion bacilli per c.c.

Dosage—The dosage used was that of Sauer, namely 8 c.c. It was given in 3 doses of 2 c.c., 3 c.c., and 3 c.c., respectively, usually weekly, but with longer intervals in a number of instances. The injections were made subcutaneously in the buttocks.*

Selection of the children—The children in the study were selected from the active rosters of 5 child hygiene stations of the Cleveland Division of Health. The stations selected serve a considerable part of the eastern section of the city. Practically all the infants attending these stations are under supervision of public health nurses from birth, and their histories with regard to occurrence of whooping cough and other infectious diseases are known, therefore, with some accuracy. Due in large part to the practice of issuing milk at these stations, on prescription good for a limited period, free or at a special rate for those unable to pay or to meet full cost, the proportion of registered children attending regularly is high. Milk distribution and supervision by the station nurses is discontinued when a child reaches 15 months of age.

In selecting the records it was decided to include all children fulfilling the following conditions:

1. Had not had whooping cough.
2. Was a member of a family in which there was at least 1 older child who had not had whooping cough.
3. Was between 6 months and 15 months of age.

The work was commenced at Station No. 6. Every second child on the registration roll fulfilling the above conditions was selected for inoculation, the alternate numbers being kept as controls. Of 85 so selected for inoculation, only 39 were inoculated because of failure to return to the station, because of errors in the history either of the infant or of the older child, or because of refusal of the parents. Inoculation was then offered to the control children with the result that a total of 94 children were inoculated and 74, whose parents did not wish inoculation, were kept as controls.

In the later drawings at the other 4 stations, the scheme was modified. Attendance and response were poorest among those able to bear the full cost of milk, and these families were excluded. With these omitted, every third child on the rolls conforming to the original conditions was selected as a control, the first and second being offered inoculation. In these later drawings, 794 were selected for inoculation and 397 for controls. The actual number entering the study at these 4 stations was, however, reduced to 389 inoculated, 247 controls, and 175 refusals, as follows:

	Inoculated	*Controls*
Chosen:	794	397
Failed to return	93	52
Error or doubt re child's previous attack	16	12
Error or doubt re history of older child	121	86
Refused inoculation	175	..
Remaining	389	247

During the period of observation, additional information gleaned from the

* *Untoward reactions*—The injections were given usually between 10 and 11 A.M. In the afternoon a rise of temperature was sometimes observed. Some local reaction usually occurred, persisting for about 72 hours. In the late afternoon following the 1st dose, of 97 children observed, 11 had rectal temperatures of 38.1° C. or over, and 3 of 39.0° or over; of 101 observed following the 2nd dose, 18 had temperatures of 38.1° or above, and 5 of 39.0° or over; and of 91 observed following the 3rd dose, 18 had temperatures of 38.1° or over, and 3 of 39.0° or over. Fever on the morning following inoculation was infrequent. Three children are stated to have had convulsions within 12 hours following inoculation, and, in 1 of these, convulsions were observed by a nurse.

parents raised doubt with regard to the susceptibility of the older child in 21 families consenting to inoculation, and in 6 families belonging to the control and refusal groups. This would tend in the direction of lowering slightly the probability of attack in the inoculated group.

Inoculations were commenced in June, 1934, and completed in July, 1935, at which time, in all 5 stations, 483 children (94 at No. 6 + 389 at other four stations) were treated, 422 having received 3 doses, 21 only 2 doses, and 40 only 1.

Methods of obtaining notification—Since it is well known that a considerable proportion of cases of whooping cough among infants and young children are not seen by physicians, the following methods were, and continue to be, used to obtain reports:

1. Advantage was taken of the fairly regular attendance at the stations to the age of 15 months. The station pediatricians agreed to keep notes on a special form attached to the clinic record, indicating the presence or absence of symptoms suggestive of whooping cough. If any child failed to report during any 4 weeks period a nurse was sent to the home.
2. Those over 15 months of age were visited once in 4 weeks by 1 of 2 nurses employed for this purpose.
3. Each day the names and addresses of all reported cases in the city, save those on the west side, were checked against name and address files of the inoculated and control groups.

Procedure on notification—On report of a definite or suspected case in one of the families under observation, irrespective of whether the individual attacked was one of the study children or another member of the family, the home was visited by the staff epidemiologist who obtained a detailed clinical and epidemiological record and endeavored to confirm or reject the diagnosis. Blood smears were obtained from practically all cases, and cough plates whenever good exposures could be obtained. Leaving blood plates in the home to be exposed by the mother has been successful in a few instances. In doubtful cases, a consultant pediatrician visited the home. To have the child brought to the hospital usually has been found impracticable, save in the event of a serious complication.

Acceptance of diagnosis—A clinical diagnosis by the staff epidemiologist, supplemented in doubtful cases by the opinion of the consultant pediatrician, and supported by clinical notes on the character of the cough, whooping, and vomiting, and by laboratory findings, constituted the basis for acceptance as a case of whooping cough.

INCIDENCE OF WHOOPING COUGH

As a preliminary step, in the analysis of the situation to September 12, 1936, the gross incidence at No. 6 and the other stations was summarized, with the result shown in Table II.

As a picture of absolute attack rates, Table II may be incorrect, as will be discussed later. It serves, however, as a rough index of relative incidence as

TABLE II

SUMMARY OF INCIDENCE, JUNE 24, 1934, TO SEPTEMBER 12, 1936

	Inoculated		*Controls*		*Refusals*	
Station	*No.*	*Cases*	*No.*	*Cases*	*No.*	*Cases*
No. 6	94	12	..	..	74	13
No. 1, 2, 4, 5	389	49	247	38	175	20
Total	483	61	247	38	249	33

TABLE III

PERCENTAGE DISTRIBUTION OF INOCULATED, REFUSALS, AND CONTROLS ACCORDING TO COLOR AND SEX

Class	(a) Inoculated (483)	(b) Controls (247)	(c) Refusals (249)	(b) and (c) (496)
White males	78.5	81.8	93.2	87.5
Colored males	21.5	18.2	6.8	12.5
White females	48.4	47.4	57.0	52.2
Colored females	51.6	52.6	43.0	47.8

between the inoculated and other groups, and as between No. 6 and other stations. Since no material differences appear, there seems no valid reason for not combining the experience of all stations, nor for keeping the control group as a separate unit from the refusals. This opinion is strengthened by an examination of the color, sex, and age distributions (Tables III and IV).

Even more important is the geographical distribution of groups to be compared, since the disease does not prevail in all sections of the city at the same time. A spot map has been prepared, according to address at time of enrollment, which shows remarkable uniformity of distribution as between inoculated, controls and refusals. This map is not reproduced here.

The present report, therefore, deals with the incidence of whooping cough in a group of 483 inoculated children and in a control group of 496. Of this latter group, 247 were originally drawn as controls and 249 were drawn for, but refused, inoculation.

Incidence by 12 week periods—Obviously in such a study a more exact analysis of incidence than the summary given in Table II is required. For approximately 1 year, new children were being added at intervals to each group. At various times, also, children were dropped from the study. Those lost for 3 months or more, due to removal from the city, death, or other reasons, were taken off the roll as of the date of last observation. Thus 40 were removed from the inoculated group and 61 from the controls. Such fluctuations in numerical strength, associated with known seasonal variation in prevalence, make it necessary to examine the incidence of whooping cough for successive periods of time, which should be sufficiently short to minimize both of these sources of error. It has seemed a sufficient refinement to divide the period from June 24, 1934, to September 12, 1936, into 10 periods of 12 weeks each. In the final report, there may be minor alterations in the figures for the last period.

TABLE IV

PERCENTAGE DISTRIBUTION OF "INOCULATED," "REFUSALS" AND "CONTROLS" ACCORDING TO DATE OF BIRTH

Date of Birth	(a) Inoculated (483)	(b) Controls (247)	(c) Refusals (249)	(b) and (c) (496)
2-16-33 to 8-15-33	8.3	6.1	12.0	9.1
8-16-33 to 2-15-34	35.0	23.5	28.9	26.2
2-16-34 to 8-15-34	37.7	41.7	39.8	40.7
8-16-34 to 2-15-35	19.0	28.7	19.3	24.0

For each 12 week period, the net or average strength of each group has been assumed to be the number registered at the end of the preceding period, minus any who have developed whooping cough, plus one-half of those newly enrolled and minus one-half of those lost. For example, the net strength of the control group for the period ending 11/10/34 is taken as 88. There had been 53 enrolled in the preceding period but 2 had been lost and 7 had developed whooping cough, leaving 44 to enter the period under consideration. There were enrolled 98 new children, one-half of whom are added, making 93; 10 were lost, one-half of whom are deducted, making the net strength 88.

In calculating incidence rates for these 12 week periods, all inoculated children have been regarded as enrolled on the date of their first inoculation. This is the most severe test, in that it allows no time for immunity to develop. This will be discussed later. Control children have been registered as of the date on which they were first seen, after selection, by the clinic pediatrician. The tabulation is given in Table V.

Inspection of Table V shows that incidence in the inoculated children has not differed significantly at any time, from that in the control group.* After 2/2/35, that is, for seven 12 week periods, the numerical strength of the 2 groups is remarkably close in each quarter, the average being 404 for the inoculated and 399 for the control group. During these 7 periods, 54 inoculated children were attacked and 61 controls, or 13.4 per cent of the former and 15.3 per cent of the latter.

Similar tabulations have been made allowing lag periods of 1, 2, and 3 months between last inoculation and enrollment for the inoculated, and between first observation after selection and enrollment for the controls. In these tables all inoculated children having less than full dosage have been excluded. The net result of the 3 month lag shows 42 cases in the inoculated, and 53 in the control group. For the last five 12 week periods, that is, from 7/20/35 to 9/12/36, the average strength of the inoculated group was 355 and there were 39 cases, an attack

* As a check on the relative completeness of reporting, the number of minor respiratory attacks of all types (common colds, sore throats, etc.) have been tabulated, to and including 1/4/36. Of such there were 908 in the inoculated and 842 in the controls.

TABLE V

WHOOPING COUGH, IN CONTROL AND INOCULATED GROUPS FOR TEN 12 WEEK PERIODS, JUNE 24, 1934, TO SEPTEMBER 12, 1936

12 Week Period Ending	Control Group			Inoculated Group		
	Net Strength	No. Cases of Pertussis	Attack Rate	Net Strength	No. Cases of Pertussis	Attack Rate
8-18-34	25	7	28.0	41	4	9.8
11-10-34	88	0	....	136	1	...
2- 2-35	193	3	1.6	236	2	...
4-27-35	303	3	....	328	1	...
7-20-35	402	7	1.7	416	6	1.4
10-12-35	442	9	2.0	443	12	2.7
1- 4-36	428	3	....	425	8	1.9
3-28-36	420	8	1.9	414	5	1.2
6-20-36	409	17	4.2	408	12	2.9
9-12-36	389	14	3.6	393	10	2.5
Total		71			61	

rate of *11.0* per cent; the average strength of the control group was *406*, and there occurred *48* cases, or *11.8* per cent.

Escapes of inoculated children, when the disease is introduced into the home, are of obvious importance and have been used as a measure of efficacy of vaccination. The records on first inspection show 14 such escapes in the inoculated and none in the control group. Closer examination, however, discloses several facts which throw doubt on the significance of this observation. In 2 instances, the inoculated children were exposed shortly *before* their first inoculation, the clinic physicians being unaware of the existence of whooping cough in the home. The intervals between onset of the primary case and inoculation of the selected children were 9 and 17 days respectively. Excluding these, there are 12 classified as escapes. In only 5 instances were positive cultures secured on the primary cases, but in all there is satisfactory clinical evidence of whooping cough. One of the inoculated children, although undoubtedly exposed, was absent from home for 14 days of the early quarantine period. Eight inoculated children had atypical coughs and may have had abortive attacks. This leaves 3 who, strictly speaking, may be said to have escaped. It is of interest that in 1 family of the 14, twins had been inoculated. One had a typical attack and the other only an atypical cough.

Of 422 receiving full dosage, 30 were lost from observation, leaving 392; among these there occurred 54 cases, a crude attack rate of 13.8 per cent. Of 21 receiving 2 doses only, 2 were lost, leaving 19; among these there occurred 4 cases. Of 40 receiving 1 dose only, 8 were lost, leaving 32; among these there were 3 cases. For 51 receiving incomplete treatment, therefore, the attack rate was 13.8 per cent.

CLINICAL CHARACTERISTICS

A definite answer regarding the relative severity of attack in inoculated and controls, respectively, will not be attempted in the present report. There are many difficulties in making a fair appraisal. Of the 61 inoculated children who were attacked, all recovered. Of the 71 controls attacked, 1 died. Duration of cough, of whooping, and of vomiting, and other available data are being studied for the 2 series.

All cases included in both series had paroxysmal coughing. All save 10 of those among inoculated and all save 13 among controls are known to have had, in addition, characteristic whooping. In some of those in which it is not recorded, whooping probably occurred. Every effort has been made to apply equivalent diagnostic standards to both series, as may be seen from Table VI.

TABLE VI

RESULTS OF CULTURE IN RELATION TO OCCURRENCE OF CHARACTERISTIC COUGHING AND WHOOPING: "INOCULATED" AND "CONTROL" SERIES

	"Inoculated" Cases		*"Control" Cases*	
Culture	*Total*	*No. with Cough and Whoop*	*Total*	*No. with Cough and Whoop*
Positive	19	18	32	27
Negative	27	22	21	18
Not taken	15	11	18	13
Total	61	51	71	58

As shown in Table VI, there remain 9 cases among the inoculated and 8 among the controls in which cultures were either negative or not taken and in which characteristic whooping is not known to have occurred. In each of these instances typical whooping cough was considered to be present in the family. In 5 of those of the inoculated, and in 4 of the control series, the child in addition to paroxysmal coughing, had a relative lymphocytosis of 60 per cent or above. The remaining 8 cases may be excluded or allowed to remain; since they are divided equally as between the two series, it seems of little consequence.

To the present, it is the impression of the physicians, who have seen representative cases of both series, that attacks among the inoculated tend to be milder. It is hoped to continue the study until February, 1937, and this question will be discussed fully in the final report.

SUMMARY

1. Between June, 1934, and July, 1935, 483 Cleveland children, of between 6 and 15 months of age were given whooping cough vaccine prepared from recently isolated strains of *H. pertussis*. The dosage used was approximately 80 billions. All save 61 of the children received full treatment. A total of 496 children of comparable ages and living in the same neighborhoods were selected as controls.

2. Children of both groups were kept under observation through the Child Hygiene Stations of the Division of Health to the age of 15 months. Those over this age were, and continue to be, visited in their homes once every 4 weeks by experienced nurses, employed specifically for this purpose. In addition, whooping cough cases, notified by physicians from the eastern section of the city are checked each day against name and address files of inoculated and control children. All cases, definite or suspected, are investigated by a medical member of the staff, who calls in a consultant pediatrician when necessary.

3. From June 24, 1934, to September 12, 1936, there have occurred 61 attacks among inoculated and 71 among control children. Tabulations are given showing attack rates for each of 10 successive 12 week periods. In none of these were significant differences observed.

4. Allowing 3 months to elapse between completion of inoculations and enrollment in the inoculated group, and between selection and enrollment in the controls, reduces the incidence in both groups, but shows no advantage to the inoculated.

5. The opinion of physicians who have seen representative attacks in both groups is that those in the inoculated have been milder. This is a difficult question to settle. There has been only 1 death, and that in a control child. The question of relative severity of attack in inoculated and non-inoculated will be discussed fully in the final report.

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The Sanitation of a Large Circus

H. E. MILLER, F.A.P.H.A.

Special Expert, U. S. Public Health Service, Washington, D. C.

IN the summer of 1934 the State Health Officer of Michigan requested the Public Health Service to assist in the investigation and control of an epidemic of typhoid fever that occurred among the employees of a large circus then showing in the state. Senior Surgeon K. E. Miller and the writer were assigned to this detail.

This request was made by the State Health Officer on account of the interstate character of the circus business and because it would be impossible for the state to follow up any control measures instituted, since the circus would pass out of the jurisdiction of the State Department of Health in a few days.

Investigation to determine the cause of the outbreak produced convincing negative evidence with respect to conditions within the circus itself that might have been responsible for the spread of infection. The findings indicated the likelihood of water supply, possibly polluted through a faulty cross-connection, being the source of infection. However, conditions existing on the circus lot with respect to the handling of water, disposal of excreta, food handling and other sanitary measures presented numerous potential health hazards that, under favorable circumstances, might provide the medium for the spread of disease, especially diarrhea and typhoid fever. However, this circus had no previous record of an epidemic of typhoid fever or any disease in which the lack of proper sanitation might be a factor, except occasional mild attacks of diarrhea. The circus world has certain cities spotted as points where diarrhea usually occurs. Furthermore, the records are conspicuous for the absence of outbreaks of typhoid fever in circuses.

Circus people are creatures of habit, and this psychology prevails in circus management. The performers perfect their acts by constant practice of a limited number of exact details to develop the precision that is necessary in the performance of hazardous feats. The famed efficiency of the circus crew is accomplished through each man having a specific thing to do at an appointed time and never varying from a fixed routine. This characteristic of circuses and circus people has been described by a circus man in the statement "Whatever practice you find on the circus lot is being conducted in exactly the same way today as it always has been, even if its origin goes back to the old circuses of Rome."

The inauguration of improved practices in sanitation requires tact, diplomacy, and patience. However, the very fact that the habits of circus people are hard to change, coupled with the further fact of rigid discipline makes it more certain that new practices, once established, will continue to be observed than in most other institutions.

On account of an epidemic of smallpox that occurred among the circus

employees 25 years ago, the circus immediately adopted and still rigidly adheres to the policy of requiring every employee to be vaccinated against smallpox.

SANITARY EQUIPMENT AND PRACTICES

The conditions found in the sanitary survey are summarized in the following: *

1. WATER (SOURCE)

The advance men, or so called "24-hour men," make a contract in each city for water to be furnished on the day or days that the circus is to be at that locality. Usually it is a municipally owned water supply, but sometimes it is owned by a private water company under municipal control. No specifications as to standard of purity were included in the contract.

Water on the circus grounds is used for the following purposes: (a) For drinking water and other domestic use in the cookhouse and about the grounds; (b) for watering the animals; and (c) for sprinkling. Safety of the water is much less essential for the latter two purposes than for the first, except for the fact that men in the horse "tops" commonly drink from the same bucket from which the horses are served. All tanks on wagons and trucks on the circus grounds were filled from the top by means of a fire hose inserted into the tank.

The method of serving drinking water was found to be exceedingly crude in most instances, the prevailing custom being to use a barrel, keg, or bucket with ice immersed in the water, and the water was served to the individual by means of a common dipper or cup.

Water on the Sleeping Cars—Each sleeping car is equipped with overhead tanks averaging about 300 gallons per car. Water from these tanks is said to have been used for lavatory purposes only. These tanks are filled ordinarily from the railroad yard supply, which is separate from that from which the circus lot supply is derived. Water for filling the car tanks is secured by means of direct hose-to-hose connection with the city supply. There is a permanent hose line installed on top of cars so that the nozzles emptying into the storage tanks never come in contact with surface dirt or filth.

Drinking water on the cars was said to be derived entirely from ice placed in coolers and allowed to melt. There are abundant indications, however, that, during the extremely hot weather, the melting ice did not furnish sufficient water to meet the demands, and that it was supplemented by water from storage tanks, which was in all probability safer for drinking purposes than water from melted ice, as the ice was necessarily subjected to contamination by handling. Water drawn from the coolers was served to the individuals by means of cups and glasses used more or less in common with other occupants of the car.

2. LATRINES (ON THE CIRCUS GROUNDS)

Nothing worthy of the name of latrine was found. It was customary to dig a shallow trench or none at all over which was installed a straddle bar or, in a few instances, a seat arrangement, with no attempt to exclude flies. The principal function of the so-called "latrine," however, was to afford privacy from public view by means of canvas side walls.

Toilet Facilities on the Cars—The cars were equipped with galvanized iron buckets swung under each toilet commode for use when the cars were parked. No disinfectant or fly repellent was used. The contents of these con-

* Extract from "A Report on an Epidemic of Typhoid Fever in a Circus," by K. E. Miller, Senior Surgeon, and H. E. Miller, Special Expert, U. S. Public Health Service.

tainers were supposed to be disposed of by earth burial, but there are grounds for speculation as to the efficiency of this service.

3. COOKHOUSE

(a) *Dishwashing* — The equipment in each instance consisted of 2 tubs of water, 1 for washing the dishes and 1 for rinsing. The temperature of the water was ordinarily little more than lukewarm. Both wash and rinse water became heavily charged with food particles, so that the solution commonly resembled a thick soup. Dishes withdrawn from the rinse water were seen to have numerous food particles still clinging to them. Dish towels soon became water-soaked and laden with grease and food particles.

(b) *Protection Against Flies*—Bread and other food supplies on the tables and in the kitchen were not sufficiently guarded against flies.

(c) *Food Handlers*—Cleanliness of outer garments and personal cleanliness were found considerably below standard. The custom in serving meats and many other foods to the plates was by the hands direct, without the use of serving forks or other suitable instruments. Physical examination of food handlers had not been carried out, and no stool examinations for typhoid carriers had been made. Mixed garbage and refuse of all kinds were disposed of by dumping on the surface of the ground.

4. TYPHOID INOCULATION

No effort had been made to require or encourage individual antityphoid prophylaxis. Only 143 gave history of previous typhoid inoculation.

SANITARY MEASURES INSTITUTED

Although the findings fail to indicate any source within the circus itself which could have been held responsible for the epidemic, the following sanitary measures were instituted by the circus management, upon recommendation of officers of the U. S. Public Health Service, to safegard against secondary cases and provide the maximum protection for the future through precautionary practices applicable to conditions under which the circus operates:

1. The advance men were required to secure statements from the local health officer certifying that the water supply conforms to the standards for interstate traffic, that the ice contracted for is from an approved source, and that the milk is of a safe quality and pasteurized.

2. Water was required to be taken only from hydrants designated by a responsible employee of the water company and opened by him personally or by his representative.

3. Water tanks were remodeled so as to prevent the insertion of a hose into the tank.

4. All water tanks, storage tanks on cars, and cooler tanks were chlorinated once each week.

5. All containers for dispensing drinking water were replaced by covered coolers with spigots. The coolers were so constructed that ice should not come in contact with the drinking water.

6. The common dipper or cup was prohibited, and replaced by single service paper cups.

7. Each unit of the circus was equipped with adequate latrine facilities. Also suitable latrines were provided for public use. The latrines consist of an earth pit, usually 3 feet deep, and covered at the top by a collapsible fly-proof steel latrine seat. When placed over the latrine pit the earth is banked around where the bottom rests upon the ground so as to insure against the entrance of flies. The seat openings are covered with fly-tight lids. Sufficient chloride of lime is used to

repel flies, destroy odors, and disinfect the latrine contents. In the men's latrines there is an accessory urinal trench, which also is generously treated with chloride of lime. These latrines were placed under constant supervision by circus attendants. The location of these latrines must be satisfactory to the local health officer.

8. In the cookhouse, temporary improvement in the dishwashing arrangements was effected by requiring all dishes, after being rinsed, to be passed through a chlorine sterilizing bath. As a permanent measure, however, the order was placed for a dishwashing machine to be mounted in a special truck, together with its own power unit and water tanks, whereby hot and cold water can be supplied under pressure. This unit was delivered at St. Louis on August 11, and is reported to have been in constant and efficient use ever since.

Food on the table and in the kitchen was guarded against flies by coverings in so far as practicable.

Food handlers were placed under rigid supervision as regards clothing and personal cleanliness. The serving of foods by means of proper utensils was required. All food handlers were physically examined for tuberculosis, venereal disease in communicable form, and all other communicable diseases. In addition, two samples of stools and urine were taken from each to rule out any typhoid carriers. All reported positive were immediately discharged and returned home in custody of local health officers.

As regards garbage disposal, the first requirement was a separation of food refuse from tin cans and combustible material. The latter was burned before the site was abandoned. For the food refuse, an earth pit of suitable proportions was dug near the kitchen. The garbage during the day was deposited in this pit, which was covered over with earth at the end of the day. In some cities the garbage was deposited directly into garbage trucks furnished by the city.

The entire circus personnel was subjected to antityphoid inoculation.

As a surety that every phase of health protection for the circus personnel and the public will be adequately guarded in the future, the circus engaged two additional employees for the remainder of the season. One of these is a medical man to have charge of the medical phases of health protection, and the other a highly trained and experienced sanitary supervisor. The employment of a sanitary inspector has been continued.

The following regulations were prepared for the circus and have been adopted by the circus management as the standard of sanitary practice:

COOKHOUSE

1. *Water Supply*—
   a. The drinking water shall be secured from the tank designated as drinking water supply tank.
   b. Water for drinking shall be from the standard covered drinking water coolers, equipped for spigots for drawing water.
   c. Drinking water shall be served only in clean individual service paper cups.
   d. The use of the common drinking cup or dipper and the practice of dipping drinking water are expressly forbidden.
   e. All ice used in water coolers shall be thoroughly rinsed with clean water after breaking and before being placed in coolers.
   f. All coolers shall be kept clean at all times and thoroughly sterilized once each week in accordance with the instructions of the Superintendent of Sanitation.

2. *Food Handling*—
   a. All food shall be protected against flies, dust, and other sources of contamination to the greatest possible extent at all times, by means of covering and through other practical measures.

b. All cookhouse employees (especially cooks and waiters) shall wear clean outer garments and present evidence of personal cleanliness. All employees handling food shall wash their hands thoroughly with soap and water before entering on duty. All cookhouse employees shall wash their hands thoroughly with soap and water after each visit to the toilet while on duty before returning to duty.

c. Wash basins and individual towels, either paper or cloth, adequate both as to number and distribution, shall be provided at all times for the use of cookhouse employees.

d. All dishes, after being washed, shall be removed from the dishwashing machine, stored, and handled in a manner to prevent soiling or recontamination.

e. Health certificates: Each food handler shall have a certificate from a properly qualified health officer attesting the fact that he is free from venereal disease in a communicable form, is free from evidence of tuberculosis or other communicable disease, and is free from evidence of being a typhoid fever carrier, as indicated by two or more successive stool cultures. The certificate shall also show that he is immune to smallpox and has been inoculated against typhoid fever in the past 3 years. The health certificate shall not be considered valid after 6 months.

3. *Garbage Disposal*—All garbage and refuse must be separated.

a. All paper, trash boxes, and other combustible material shall be collected so as to prevent a nuisance.

b. Table scraps and other organic garbage shall be collected in covered, water-tight, metal garbage cans. Distribution of cans as to number and location shall be adequate to provide for the collection of garbage at all points where garbage accumulates.

c. Except where garbage is collected from the containers by the city or some other agency which will wholly remove same from the grounds, all garbage shall be buried with at least 2 feet of earth, in accordance with instructions of the Superintendent of Sanitation.

4. In addition to the foregoing, all other practicable measures for insuring the safety of food shall be carried out at all times in accordance with the instructions of the Superintendent of Sanitation.

NOTE: In all towns the "24-hour man" shall use every effort to get a covered garbage wagon to remain at the cookhouse during show day.

FOOD DISPENSED TO THE PUBLIC

Sanitary regulations governing the cookhouse shall apply in all respects to all candy butchers and other persons in any way engaged in preparation or dispensing of food to the public, with the following exceptions:

1. When hand dishwashing is done, the dishes shall first be washed in hot water with soap or washing powders, passed through a clean hot water rinse, and again rinsed in a rinse water treated with chlorine to sterilizing strength.

2. Dish towels shall be boiled and rinsed through chlorine sterilizing solution after each use.

3. The cooling water in which all bottled goods are cooled shall at all times be treated with chlorine to sterilizing strength.

DISTRIBUTION AND SERVICE OF DRINKING WATER

1. The use of the common drinking cup or dipper and the practice of dipping drinking water are expressly forbidden. Single service paper drinking cups shall be provided in sufficient quantity at all water coolers.

2. All water coolers shall be kept clean, shall be kept covered, and shall be sterilized with hypochlorite of lime once each week, in accordance with the instructions of the Superintendent of Sanitation.

3. Circus water tank wagons shall be the only source of water supply used for filling drinking water coolers.

INSTALLATION AND MAINTENANCE OF LATRINES

1. The initial operations of setting up equipment of any department on the circus lot shall include the installation of the latrines and urinal trenches for the department.

2. Chloride of lime shall be applied to latrine trenches and urinal trenches in accordance with the instructions of the Superintendent of Sanitation.

3. The foreman in charge of the department shall be responsible for the sanitary maintenance of latrines serving the department.

FILLING TANKS AND TANK TRUCKS

1. No person connected with the circus, except those responsible for filling the tanks, shall be permitted to take water from any hydrant or other source.

2. The hydrants from which water is taken shall not only be pointed out by a responsible employee of the contracting company, or city, in person, but shall be opened by him or under his direct supervision.

3. Water for all purposes on the circus lot shall be obtained from the circus tanks.

4. All circus water tanks shall be maintained at all times in such condition as not to impair the quality of the water in the tanks or render the same unfit for drinking.

5. The hose used for filling tanks from the hydrants shall be handled at all times in such manner as to prevent the soiling or contamination of surfaces that come in contact with the water discharged into the tank.

6. All circus water tanks shall be sterilized once each week with chloride of lime in accordance with the instructions of the Superintendent of Sanitation.

WATER SUPPLY AND EXCRETA DISPOSAL FOR CARS

1. *Water Supply*—Coolers and tanks on cars shall be filled only from—

a. The approved drinking water supply source in railroad yards approved by the U. S. Public Health Service for use on Pullman and railway passenger cars, or

b. A hydrant on the public water supply system, which shall not only be pointed out by a responsible employee of the contracting company, or city, in person, but shall be opened by him or under his direct supervision.

c. The hose and other equipment used for filling tanks and coolers shall be handled in a sanitary manner, and the surfaces which come in contact with the water shall be protected against contamination from handling or by soiling with dirt or filth.

d. All ice used in coolers shall be clean artificial ice. All ice shall be thoroughly rinsed with clean water after it has been broken and before being placed in coolers.

e. All persons engaged in handling or the distribution of drinking water or in handling ice used in coolers shall conform to the requirements of the health certificate and personal cleanliness as prescribed for food handlers.

2. *Excreta Disposal*—

a. All excreta cans shall be emptied as required to prevent a nuisance.

b. Whenever the contents of excreta cans are not removed by a scavenger service in such manner as completely to remove all such material from the vicinity of the cans, the contents of cans shall be buried under a 2 foot covering of earth.

c. All excreta cans shall be treated regularly with disinfectant solution in accordance with the instructions of the Superintendent of Sanitation.

This investigation reveals a problem in sanitation in many respects peculiar in character and vast in its magnitude since it is more or less common to all circuses, carnivals, and ambulatory bodies. Carnivals probably present the most serious problem since they are more numerous, stay longer in one place, and are usually lower in scale as to equipment and character of management.

Furthermore, under the present conditions of lack of any uniformity of such state or local regulation as exists, it is humanly and economically impossible for the management of any circus or carnival that travels extensively to conform to all of the requirements and demands of all of the health jurisdictions encountered. One has only to travel with a circus a short time to become convinced of this fact. Many of the requirements imposed upon circuses by health officials are not applicable to circus conditions while others are useless and entail an immense amount of unnecessary expense.

Therefore, it is recommended that this Association appoint a committee to study the problem of the sanitary regulation of circusses, carnivals and other ambulatory bodies, and that the Conference of State Sanitary Engineers and the Conference of State and Territorial Health Officers be asked to appoint similar committees to collaborate with a committee from the

Public Health Engineering Section with a view to formulating suitable rules and regulations for the sanitary management of circuses, carnivals, and other ambulatory bodies to be recommended to all state and local health departments for adoption.

It is believed that this is one of the most urgent problems confronting health officials today, and that it can never be satisfactorily handled until state and local health officials agree upon and adopt some uniform set of requirements. Furthermore, it is believed that the managements of the various units of this vast industry will not only welcome such action, but will quite generally coöperate in the observance of reasonable, sensible uniform requirements.

More Enthusiasm for Cure than Prevention

THERE are social and economic reasons why we pay so much greater attention to individual sickness than to public health, why the pursuit of cure of disease is prosecuted so much more vigorously than the pursuit of prevention. But more important still is the absence of sensation which characterizes all real preventive work. It appeals to the intellect and not to the emotions and so fails to excite enthusiasm. The warrior, whose business is to destroy life, is loaded with honours, the physiologist, whose business is to save life, remains unknown. We had an interesting example of this in March, 1936, when on nearly the same day died our most popular admiral and the greatest physiologist of the 20th century. The politician has a more honoured calling than the dustman, but it is far less useful, for we know that if the politicians shut up for 6 months we should all breathe more freely, whereas if the dustman did, we should not be able to breathe at all. But to complain, as we often feel inclined to do, that the struggle for prevention is an up-hill game for which the public will not supply adequate funds and in which 9 persons out of 10 take little interest, is to complain of the level of human intelligence.—Dunstan Brewer, D.P.H., *Ann. Rep., Medical Officer of Health for the Year 1935,* Borough of Swindon.

The Question of Acid and Alkali Forming Foods*

JAMES A. TOBEY, DR.P.H., F.A.P.H.A.
Director of Health Service, The Borden Company, New York, N. Y.

FADDISTS rampant in the realm of pseudo-science have seized upon the acid base balance of the body as an apt subject for their sophistry. As a consequence, much more is written and said on this topic than is warranted by known facts, and much that is so blandly asserted, especially for lay consumption, is distorted and incoherent.

The acid base balance is a condition in which the ratio of carbonic acid to bicarbonate in the blood is maintained in a definite state of equilibrium. Although alterations in the hydrogen ion concentration of the blood and body fluids may and do occur within certain narrow limits, such changes are due to serious disturbances of metabolism or in the functioning of body organs, usually the result of severe morbid conditions. The effects of foods on this acid base balance have been greatly exaggerated, for their influence in bringing about modifications in the chemical content of the blood is practically nil.

All foods may, of course, be classified chemically as acid forming, base forming, or potentially neutral. By calculating the equivalent in normal acid present in the form of chlorine, phosphorus, and sulphur; and the normal alkali in terms of the calcium, magnesium, potassium, and sodium in particular foods; relative values of excess potential acid or base can be expressed.

Such calculations reveal that foods of decided potential acidity include meats of all kinds, fish, shellfish, and eggs, while cereals and breadstuffs show a mild acidity. The base forming foods include most of the fruits and vegetables, with milk and cream displaying a slight potential alkalinity. The citrus fruits contain acid radicles, but these are burned in the body so that the end products are potentially alkaline. Pure fats, sugars, starches, and other foods devoid of minerals are neutral in their reactions.[1]

In the ordinary mixed diet which is the customary fare of the individual who has not succumbed to the wiles of a food fakir, the acid and base forming elements in the diet will be reasonably well balanced. According to some authorities, however, a slight preponderance of alkaline foods is desirable, possibly for the reason that normal blood is mildly alkaline, with a hydrogen ion concentration (pH) averaging 7.35.

The scientific basis for such a categorical recommendation seems, nevertheless, to be somewhat tenuous. Recent investigations reported by Bischoff *et al.*, have shown that there is no

* Read before the Food and Nutrition Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 21, 1936.

significant difference in the acid base picture of the blood of normal individuals when they are fed mixed diets containing excessively acid or excessively alkali producing foodstuffs.[2] The ingestion of a quart of milk, a quart of orange juice, or a pound of bananas, all alkali forming foods, produced not even a temporary shift in the hydrogen ion concentration of the blood plasma, or in the alkali reserve. A pound of steak, giving an excessively acid ash, caused no changes in 3 out of 4 subjects, although there was a slight temporary reduction in plasma bicarbonate in one instance.

These interesting experiments, as well as others, indicate that the daily administration of 45 gm. of sodium bicarbonate is necessary in order to raise the pH of the blood by even 0.2 and that 15 to 20 gm. of ammonium chloride are required to lower the pH of the blood by a similar amount. In order to accomplish the same results by means of food, 18 lb. of oranges would be required in the diet at one time to bring about a shift of the blood toward greater alkalinity, and 4½ lb. of lean beef, or 2 lb. of oysters, the most acid of all foods, would be necessary to produce an effect comparable to that caused by the ingestion of 15 gm. of ammonium chloride.

It is obvious, therefore, that foods consumed in the usual quantities will not alter the acid base balance of the normal person. The explanation for this phenomenon lies in the fact that the human machine is a compensatory mechanism that remains remarkably stable under different conditions. This steady state, called "homeostasis" by Cannon,[3] is maintained by means of various delicate defense mechanisms of the body.

The first and foremost of these defense mechanisms is the buffer action of the blood itself. The important proteins of the blood, hemoglobin and oxyhemoglobin, together with the blood chloride and alkaline phosphates and bicarbonate, react with the carbonic acid of the blood to establish a more or less constant equilibrium. This balance is further aided by the lungs as they dispose of carbon dioxide, the decomposition product of carbonic acid. The lung is consequently the second defense mechanism in the control of the acid base balance.[4]

The third of these body defense mechanisms is the kidney, which unlike the blood, may show a relatively wide range of acidity and alkalinity, varying in extreme instances from pH 5 to pH 8. Excessive quantities of fixed acid or alkali are eliminated through the urine, but this fine adjustment may fail in the presence of certain diseases of the kidney, so that acidosis or alkalosis may occur.

True acidosis is a symptom rather than a disease. The word is, however, a favorite one with food charlatans, who prate of the dire results from certain food combinations. Acidosis is also a popular term with the more gullible of the laity, who invariably confuse this condition with gastric hyperacidity, or so-called "acid stomach," which is due to an excess of hydrochloric acid in that much abused organ.

The accumulation in the body of an excess of acid, or the loss from the body of alkali, occurs as a rule only in certain severe ailments in which there are disturbances of metabolic processes or organic derangements. In addition to nephritis and other kidney troubles, acidosis may accompany diabetes or the diabetic coma, severe diarrhea, starvation, and acute infections, such as pneumonia and sepsis. Acidosis is apparently more common in young infants than in adults, especially in connection with infantile diarrhea, vomiting, and dehydration but, according to Paterson, acidosis or ketosis by itself

leads to little or no change in the clinical picture of the sufferer.[5]

In many clinical reports, the term "ketosis" is used interchangeably with acidosis. Although acidosis may be associated with a ketogenic, or high fat, low carbohydrate diet, ketosis itself is a condition in which there is an accumulation of ketone bodies in the blood as the result of an incomplete combustion or aberrant oxidation of the fatty acids provided by the diet. This condition, usually expressed in terms of the acetone present, is not in itself acidosis. The ketogenic diet is now used in the treatment of epilepsy, migraine, and certain other maladies.

The scientific evidence indicates, therefore, that the question of acid and alkali forming foods is a negligible problem in human dietetics. "It is still an open question," wrote Sherman (in 1932), "whether the acid base balance of the mineral elements of the diet is or is not of practical significance in human nutrition."[6] Evidence showing the relative unimportance of the effects of acid ash and alkaline ash foods has been ably summarized in the Report of the Committee on Nutritional Problems of the American Public Health Association for 1935–1936.[7]

Despite this evidence, food fakirs continue to exploit the alleged dangers of acid foods, and rant over the chimerical hazards of incompatibility in foods. One widely publicized system of diet is based on the erroneous theory that proteins and starches, and fruits and starches should not be mixed in any one meal. As a reason for this perverted idea, it is declared that protein digestion takes place in the acid contents of the stomach, while starch can be digested only in the alkaline intestine, and that carbohydrates encounter some sort of baleful interference when associated with protein in the stomach.

The fallacy of this weird notion will be readily apparent to anyone possessing even a rudimentary knowledge of physiology, but the fallacy has also been exposed in a number of recent scientific experiments. Thus, Rehfuss has shown from gastric analyses of 50 individuals that there is no incompatibility between proteins and carbohydrates in the stomach,[8] and Shay *et al.*, have recently reported, from gastric secretory studies on 5 subjects, that mixtures of protein and carbohydrate not only do not interfere with gastric secretion, but that carbohydrate digestion in the stomach is actually prolonged and encouraged by its mixture with protein.[9]

As pointed out by Rose,[10] an avid public gloats in a belief in magic as applied to human nutrition. Food fads fostered by quacks and ignoramuses, some of whom can claim "M.D." degrees, are espoused and religiously followed by a host of deluded persons. It is the duty of public health officials, as the logical educators of the public in sensible hygiene, to aid in debunking fads and follies, such as the belief that acidosis results from acid foods, and that foods of different chemical compositions can upset the acid base balance of any normal person.

SUMMARY

Although foods may be classed as (1) acid forming, (2) alkali forming, or (3) potentially neutral, there is no scientific evidence to indicate that any one food or combination of foods can significantly alter the acid base balance in a normal individual.

Acidosis is a symptom in certain morbid conditions, but the nature of the diet plays no appreciable part in the development of acidosis, despite the fallacious arguments of food charlatans who exploit unscientific systems of dietetics predicated on excessive acid

forming foods, or on the incompatibility of various food elements.

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Upper Potomac River District

. . . Provisions were made by the 1935 General Assembly for the creation of the Upper Potomac River Commission for the purpose of conserving, regulating, and controlling water resources within the Upper Potomac River District, as discussed in the 1934 report. The act defines the boundaries of the district and delegates to the Commission certain powers and privileges, and provides for the government of the District by the Commission.

The Commission is authorized to acquire by purchase or condemnation lands, structures, or buildings, or any stream bed, water way, road way, rights of way, watershed or water rights within the District, for the construction, expansion, or maintenance of any dam, reservoir, or appurtenances thereof; to provide for the construction, maintenance, and operation of structures, buildings, dams, impounding reservoirs, and appurtenances; to provide for the regulation of the flow of water within the district and its tributaries; to provide for the levy of taxes by the County Commissioners of Allegany County for the operation, maintenance, regulation, and control of works purchased, acquired, or constructed under the provisions of this Act; to authorize the County Commissioners of Allegany County to submit to the voters of said County the advisability of making a capital expenditure of not exceeding $200,000 in furthering the purposes of this Act, and, in case of a favorable vote thereon, to borrow or sell bonds up to that amount and turn the proceeds thereof over to the Upper Potomac River Commission; to secure benefits of an Act of the Congress of the United States of America approved June 16, 1933, known as the National Industrial Recovery Act, and any Acts amendatory thereof, and any Acts supplemental thereto and revisions thereof, and any further Act or Acts of the Congress of the United States of America to encourage public works, to reduce unemployment and thereby to assist in the National Recovery and to promote the public welfare, or to regulate the flow of navigable or other streams, to conserve water resources and to provide for the penalties for violation of the provisions of this Act.

The Commission is composed of 3 members; 1 appointed by the County Commissioners of Garrett County, and 1 by the County Commissioners of Allegany County, and the 3rd named by the Governor.

The territory included within Allegany County and Election District No. 4 of Garrett County constitutes the Upper Potomac River District for the purposes of the Act.—*Annual Report of the Bureau of Sanitary Engineering of the Maryland State Board of Health—Year 1935.*

History of Typhus Fever in Louisiana*

E. HAROLD HINMAN, PH.D.

Department of Tropical Medicine, Louisiana State University Medical Center, New Orleans, La.

THE destruction wrought by epidemics of typhus in past centuries is familiar to everyone. Wherever there has been concentration of the population in close quarters, this pestilence has been rampant. It has devastated armies, jails, immigrant and slave ships, and the population of large cities, especially in times of famine. The various names given to this plague suggest its epidemiology, *e.g.*, famine fever, jail distemper, ship fever, and putrid fever. Other synonyms have been given according to the appearance of the exanthema, as the German Fleckfieber (spotted fever); flea bite fever (because of the similarity of the eruption to flea bites); the Spanish called it Tabardillo; the Italians, Petecchii; and the French, La Pourpé. The word typhus comes from the Greek, meaning stupor.

Vaughan (1915) points out that Hippocrates describes a case very suggestive of typhus but it was not accurately distinguished until the 16th century when Fracastor and also Cardan differentiated it from plague. Typhoid was not differentiated until 1837, by Gerhard, a Philadelphia physician. Vaughan also states that during the 16th century, typhus was so prevalent in the jails of England that it spread among court officers when the prisoners were brought before them for trial. This happened repeatedly and gave the designation of "black assizes" to the court session. The great plague of London (1665), according to this author, was preceded, accompanied, and followed by typhus. At this time the most eminent medical men confused typhus and plague. Typhus fever was apparently introduced into Mexico at the time of the Conquest (1530), and has been endemic there ever since. It was not until 1909 that Nicolle demonstrated that the disease could be transmitted by body lice from monkey to monkey, and this laid the foundation for prophylaxis and control of the infection. The etiology of the disease is still uncertain, but it is generally conceded to be due to *Rickettsia prowazeki* described by Da Rocha Lima in 1916.

TYPHUS IN AMERICA

Kantor (1915) points out that the United States is exposed to infection with typhus on 3 sides, from Asia, from Europe and Africa, and from Mexico. Probably a few scattered epidemics have been introduced from Mexico as, for example, among the New Mexico Indians and in New Orleans from the disbanded troops, but the great majority of cases had their origin in im-

* Presented before the New Orleans Acadamy of Sciences, March 15, 1935, as part of a symposium of the History of Some Important Tropical Diseases in Louisiana.

migrant boats from Europe. Previous to the Civil War typhus was prevalent in all the leading seaport towns of the United States, but is generally considered not to have become endemic. According to Vaughan (1915) the records of the Civil War report 1,723 cases with 572 deaths, but he questions the diagnosis. No cases were reported by Confederate officers.

EPIDEMIC TYPHUS IN LOUISIANA

Data on typhus in early Louisiana is surprisingly scanty. In a diary kept by Dr. McGuire at Monroe, La., from 1818 to 1852 (a typewritten copy is in the Howard Memorial Library), there are a number of entries in the years 1819, 1827, 1832, and 1851, referring to typhus or typhus-like fevers. The syndrome is not described and, owing to the inland location of this town, it is improbable that he was dealing with true typhus. Heustis (1817), an army surgeon, in his *Physical Observations and Medical Tracts and Researches on the Topography and Diseases of Louisiana* makes no reference to epidemics which are recognizable as typhus.

The reports of the Board of Administrators of the Charity Hospital at New Orleans for the year 1832 lists 29 admissions with 17 deaths from typhus fever and 4 additional cases with 4 deaths from congestive typhus fever. Since Gerhard did not differentiate typhoid until 1837, one must accept these records with reservations. The reports for 1843 give 9 cases of typhus, for the year 1844, 4 more, 3 of which were fatal. In 1847 the first real epidemic was recognized when 1,045 cases out of a total of 11,945 admissions occurred. For 6 consecutive years, an average of over 1,200 cases were diagnosed annually in this hospital. Table I shows the monthly distribution of cases or deaths from typhus in the Charity Hospital (1843–1852).

The distribution by months suggests that the infection was introduced in February, 1847, failed to become endemic, but that new cases were imported in October of that year. This epidemic then persisted for 6 or 7 years, during which time typhus might be considered to have become endemic, although new cases may have been frequently introduced.

The *Report of the Board of Administrators of the Charity Hospital* for the years 1848 and 1849 states:

> Cases of smallpox and ship fever must be expected to occur more frequently year by year; the admission of them into the hos-

TABLE I

TYPHUS FEVER IN CHARITY HOSPITAL, NEW ORLEANS, LA.

		No. of Cases												
Year	Total Admiss.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1843	5,013	...	...	...	...	...	3	6	...	...	...	...	...	9
1844	5,846	...	4	...	...	...	...	...	...	...	...	...	...	4
1847	11,890	0	2	4	107	165	369	57	1	0	4	100	236	1,045
1848	11,945	520	588	267	169	117	28	23	11	9	56	64	30	1,882*
1849	15,558	79	127	193	140	128	65	43	44	49	21	23	58	970

		Deaths													
Year	Total Admiss.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1850	18,676	?	?	?	?	?	18	9	5	13	9	15	?	149	1,043†
1851		42	42	43	61	25	9	11	9	22	23	19	16	322	1,305†
1852		13	31	27	(Other months not available)									150	1,009†

* Typhus-typhoid

† Total cases

(Compiled from the *Reports of the Board of Administrators*, from the *Annual Reports of the State Board of Health* and from the *New Orleans Medical & Surgical Journal*)

pital endangers many valuable lives of the officers, physicians, nurses, and attendants, besides those of the patients, among whom an epidemic may be engendered. It is most earnestly and respectfully recommended to the Legislature to make provision against this evil.

It was suggested that the state take over the Franklin Infirmary so as to provide adequate care for typhus patients and thus segregate them from the Charity Hospital patients.

In the early volumes of the *New Orleans Medical and Surgical Journal*, under editorials written on the health and mortality of the city, appear a few casual references to typhus. It is difficult to understand this lack of interest in a disease which accounted for more than 8 per cent of all the admissions to Charity Hospital during this time, unless it can be explained by the attention focused upon the epidemics of yellow fever and cholera raging at the time, yellow fever causing 2,306 deaths in 1847, and 7,849 in 1853, while cholera caused 924 in 1848, 2,081 in 1849, 1,080 in 1852, and 554 in 1853. Thus in January, 1845, the editor writes:

> In the hospital there have been a few cases of typhus fever in persons recently arrived by sea, and from the country, but as far as we know, none have originated in the city.

In July, 1847, the editor refers to inmates of the Charity Hospital having contracted ship fever while in the institution. Four employees of the hospital were sick, on the service of Dr. T. M. Logan, with ship fever and 1 died. An editorial in March, 1852, states:

> Typhus fever still prevails in the large hospitals and but for the constant accessions to that disease from abroad, we feel convinced that the fever could do us but little harm, and would excite less attention.

Again in May, 1853, the Journal remarks:

> Our mortality from fever has been uncommonly small, chiefly attributable, perhaps, to the fact that very little ship fever has been brought in by the emigrants from Europe.

TABLE II

TYPHUS IN NEW ORLEANS AND IN THE CHARITY HOSPITAL

Year	Charity Hospital		New Orleans	Year	Charity Hospital		New Orleans
	No. of Cases	No. of Deaths	Deaths		No. of Cases	No. of Deaths	Deaths
1832	29	17	..	1868	0	..	5
	Congestive typhus			1869	1	1	5
	4	4	..	1870	1	1	13
1843	9	..	..	1871	0	..	4
1844	4	3	3	1872	0	..	4
1845	0	..	5	1873	0	..	5
1846	0	..	..	1874	0	..	2
1847	1,045	?	154	1875	0	..	2
1848	1,882	344	372	1876	0	..	..
1849	970	224	164	1877	0	..	1
1850	1,043	149	199	1878	..	..	23
1851	1,305	278	228	1879	0	..	2
1852	1,009	150	..	1880	0	..	1
1853	213	59	103	1881	0	..	0
1854	51	18	..	1882	0	..	..
1855	44	29	46	1883	0	..	0
1856	27	11	22	1884	0	..	3
1857	4	2	8	1885	0	..	1
1858	8	5	20	1886	0	..	1
1859	22	10	7				
1860	3	0	10				
1861	1	1	5	1929	2	0	
1863	No record		9	1930	1	0	
1864	0	..	11	1931	1	0	Endemic
1865	..	..	5	1932	9	1	typhus
1866	..	..	12	1933	3	0	
1867	0	..	23	1934	4	0	

TABLE III

MORTUARY REPORTS (INTERMENTS)—STATE BOARD OF HEALTH

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1855	..	..	..	..	4	5	14	3	8	3	1	2	46	
1856	1	2	2	1	3	1	3	3	1	2	2	0	21	
1857	1	1	1	0	0	0	0	1	0	0	1	1	6	
1858	4	0	0	1	1	1	0	3	2	6	1	1	20	
1859	0	0	1	0	0	1	0	0	2	1	2	0	7	
1867	..	..	..	..	..	..	..	1	4	2	2	3	12	(5 mos.)
1869	0	0	0	0	0	1	0	3	0	1	0	0	5	
1870	0	1	1	3	0	1	0	3	2	2	0	0	13	
1871	0	1	0	0	1	0	0	1	0	0	1	0	4	
1872	0	0	1	0	0	0	0	1	0	0	0	2	4	

Axson, President of the State Board of Health, in his report for 1859, writes:

It will be remembered that the institution of quarantine was resorted to as part only of a system of preventive measures by which it was ardently hoped the scourge of yellow fever, together with ship fever and cholera, might be excluded from our state. The ravages occasioned not only in our city but throughout the length and breadth of the state by the introduction of the famine fever, more popularly known as the ship fever, of 1847, and of cholera, of 1848, through the instrumentality of the perishing population of Ireland, France and Germany fleeing from the disaster of famine and its invariable attendant, pestilence, were sorely felt in those years. . . .

Ship typhus fever in New Orleans was derived from the European emigrants, especially those from Ireland, who are miserably poor and dirty and arrive with typhus generated on the voyage. On the 11th of February (1848?) 500 cases of ship fever were in the crowded wards of the Charity Hospital. . . . Our city during that and succeeding years was the great thoroughfare of disbanded Mexican soldiers, returning here, worn in health and body and mind; many of them bringing in their persons the infection of the dreaded *vomito* among the other maladies which consumed their life or impaired their health.

Table II presents a summary of available statistics on typhus in New Orleans and in the Charity Hospital compiled from the *Reports of the Board of Administrators of Charity Hospital* and from the *Reports of the Board of Health of the State of Louisiana.*

As a supplement to Table I we may now examine the mortuary records of the City of New Orleans as available in the *Annual Reports of the State Board of Health.* This is contained in Table III.

Jones, President of the State Board of Health, presents a summary from the *Report of the Board of Health of the State of Louisiana* for the year 1883 which is reported in Table IV.

Jones, in commenting on these statistics, says:

Surely, this is a remarkable fact. Truly the prevalence of typhus fever during the 18 years preceding our Civil War, and almost total absence in the 16 years following the great civil convulsion, can be referred to well known causes. First, typhus fever was imported into New Orleans by means of the emigrant ships which bore to these hospitable shores the fever and famine stricken and oppressed inhabitants of Ireland. Previous

TABLE IV

TOTAL NO. OF CASES AND DEATHS FROM TYPHUS IN CHARITY HOSPITAL AND IN NEW ORLEANS DURING A PERIOD OF 34 YEARS

	Period Preceding Civil War 1844–1860		*Period Following Civil War 1864–1880*		*Total for 34 Years*		
	Cases	*Deaths*	*Cases*	*Deaths*	*Cases*	*Deaths*	*Per Cent*
Charity Hospital	7,220	1,301	2	2	7,222	1,303	18
New Orleans	....	1,320	..	102	....	1,422	

to the year 1847, typhus fever does not appear to have made any serious lodgment in the City of New Orleans, although it has been committing ravages in Europe for centuries before.

The disease introduced in 1847, both from Mexico (by the United States troops) and from Europe from the fever stricken and starving districts of Ireland, raged as an epidemic in this city for several years.

The same author points out that although nearly 1,500 inhabitants of New Orleans died of typhus, the disease was confined chiefly to the poor and ill fed, as the majority of the deaths occurred in the wards of the Charity Hospital. He stresses the fact that quarantine is essential to the protection of New Orleans from the introduction of typhus fever and that these measures must be perpetual. He believes that typhus introduced into New Orleans tends gradually to become extinct, due to the better food, better living or ventilation of the mass of the inhabitants. He attributes the improvement in the health of the population partially to the building of an extensive street railroad system which has scattered the dwellings, thus preventing overcrowding.

DISCUSSION

It is unfortunate that no data is available upon typhus fever in Louisiana previous to 1843, with the exception of the *Report of the Board of Administrators of Charity Hospital* for 1832. This latter record is undoubtedly open to question. It is almost inconceivable that typhus was not introduced into New Orleans earlier than this date, when epidemics were so frequent in Europe. The source of the earliest cases in New Orleans has been rightly attributed to immigrant boats from Europe and to the disbanded United States soldiers returning from Mexico. It is very surprising that typhus, once introduced into this city, did not spread throughout the state, but no records of this occurrence exist, with the possible exception of the diary of Dr. McGuire, referred to above. With the introduction of epidemic typhus to New Orleans in 1847, it remained endemic at least through the year 1852, and more or less continuously through 1856, if one judges from the mortuary reports of the City of New Orleans. Following this the infection was sporadic. With the blockade of the city during the Civil War the disease probably disappeared only to be reintroduced upon the occupation by the federal troops in 1862. When foreign trade was resumed a few new cases were admitted, but no epidemic was engendered. Thus throughout the late 60's, 70's and early 80's, we find annually a few deaths from typhus in New Orleans. The writer is unable to explain the almost complete absence of reports of cases from the Charity Hospital records for this period.

Dyer (1933), in discussing typhus, states:

On its introduction into New Orleans in 1847, the disease was limited to the immigrants themselves and to the doctors and nurses caring for them. This lack of spread of the disease in New Orleans is most readily explainable by the scarcity or absence of body lice in our southern lowlands.

The abundance of lice during these early days is a matter upon which the writer is unable to find any information, but certainly these ectoparasites are not absent today.

One of the peculiarities of the racial distribution of this infection is pointed out by Hoffman, who found that of 502 deaths occurring between 1849 and 1885, only 25 were among the colored. The records of case admissions to the Charity Hospital also speak for the low rate among Negroes.

ENDEMIC TYPHUS IN LOUISIANA

While endemic typhus (Brill's disease?) has been recognized for years in certain southern states, the first case

was reported from Louisiana in 1929 (Rucker). Since then 46 cases have been diagnosed. According to Badger (1934) this is essentially an urban disease with the greatest incidence in the seaports and having a tendency to spread inland along lines of communication. Maxcy (1926) pointed out that epidemiological evidence was against louse transmission and suggested that a reservoir exists other than in man—probably in rodents—from which the disease is occasionally transmitted to man. This has been substantiated by the researches of the U. S. Public Health Service, notably Dyer, Rumreich, Badger and Ceder. Strains of typhus have been isolated from rats in various localities and rat fleas have been found naturally and experimentally infected. Shelmire and Dove (1931) believe that the tropical rat mite, *Liponyssus bacoti,* was responsible for transmission of the infection in Texas.

Two other theories of the epidemiology of Brill's disease should be mentioned. Kantor (1915) suggested that the infection might result from the introduction into this country (upon immune carriers) of lice harboring attenuated typhus organisms. Zinsser (1934), in studying the nativity of victims of Brill's disease in New York and Boston, found that out of 502 cases, 93.6 per cent were born in endemic typhus regions of Europe, and 80 per cent in Russia alone. He concludes that the only assumption compatible with the data is that cases of Brill's disease which have occurred in New York and Boston are recrudescences of typhus fever acquired at an earlier time in endemic typhus foci in Europe. He maintains that Brill's disease is an imported form of the classical European typhus fever. According to this author, the endemic typhus of the northeastern states is distinct from that of southern United States, the latter resembling tabardillo of Mexico.

With these opposing views in mind, the writer studied the histories of 17 cases occurring in Charity Hospital, and the epidemiological reports of the State Board of Health (46 cases). Table V shows the distribution by years and parishes of endemic typhus in Louisiana. The greatest number of cases occur in the rice growing district of the state. With the exception of Orleans Parish, the disease is practically confined to this region. The epidemiological significance of this remains unknown, but might suggest association with rats.

Table VI presents a summary of 17 cases occurring in the Charity Hospital at New Orleans. All of these were white persons and only 3 were females. Twelve were from Orleans Parish. The occupation gives no clue to the epi-

TABLE V

EPIDEMIOLOGY REPORTS OF TYPHUS FEVER

(LOUISIANA STATE BOARD OF HEALTH)

Year	*Cases*	*Distribution by Parishes*	*Deaths*	*Total by Parishes*	
1929	1	Orleans 1	0	Orleans	13
1930	0			Calcasieu	23
1931	1	Rapides 1	0	Caddo	2
1932	17	Orleans 5, Calcasieu 7, Caddo 1, Washington 2, Jeff. Davis 1, Lafayette 1	1	Washington Rapides Jeff. Davis	3 1 1
1933	11	Orleans 4, Calcasieu 6, Washington 1	1	Lafayette Jackson	1 1
1934	16	Orleans 3, Calcasieu 10, Caddo 1, Jackson 1, St. John 1	1	St. John	1
					46

TABLE VI

TYPHUS FEVER IN CHARITY HOSPITAL, NEW ORLEANS

No.	Color Sex Age	Occupation	Month	Parish	No. Days Fever: In Hospital	No. Days Fever: Before Admission	Highest Temp.	Exanthema	Weil-Felix	Total WBC
1	WM 25	Laborer	May	Jefferson	5	10	103.4	+	+	11,250
2	WM 31	Machinist	Dec.	Orleans	15	5	103.5	+	+	13,500
3	WM 22	Grocery clk.	Sept.	Orleans	11	7	104.0	+	+	9,500
4	WF 33	Housekeeper	Jan.	Orleans	13	10	103.4	+	+	10,750
5	WM 20	None	June	Orleans	7	7	104.4	+	+	11,100
6	WM 29	Laborer	Aug.	Orleans	8	14	103.8	+	+	6,600
7	WF 30	Nurse	Aug.	Orleans	11	3	104.0	+	+	5,600
8	WM 13	Schoolboy	Aug.	Orleans	10	10	104.5	+	+	5,400
9	WM 47	Painter	Aug.	Lafayette	13	10	103.2	+	+	9,000
10	WM 48	Bricklayer	Sept.	Washington	7	14	100.3	+	+	16,000
11	WM 32	Salesman	Jan.	Orleans	7	7	103.0	+	+	9,000
12	WM 45	Laborer	Dec.	Terrebonne	18	14	104.0	+	+	7,700
13	WM 40	Salesman	Oct.	Orleans	7	7	103.0	—	—	13,250
14	WM 23	Clerk	Jan.	Orleans	7	2	104.0	+	+	5,000
15	WF 24	Housekeeper	Mar.	LaFourche	16	..	104.4	+	+	4,000
16	WM 29	Clerk	Aug.	Orleans	13	16	103.2	+	—	5,800
17	WM 58	None	Sept.	Orleans	10	6	103.0	+	—	7,500

demiology. One case (No. 13) is of doubtful diagnosis. There were no fatalities. Practically all gave a history of fever for several days previous to admission, and progress notes indicate that some of them were not acutely ill. It is quite probable that there are many cases throughout the state which go undiagnosed. The Weil-Felix reaction was positive in all but 3 cases, but frequently was not positive until several days after admission. The monthly distribution did not appear significant. Through the courtesy of the State Board of Health, the writer was able to examine the histories of approximately 30 cases. The occupation of these patients gave no clues except the possible association of some with rats through the rice industry. There was no indication that imported Mexican laborers or other nationalities were responsible for the outbreak of the disease.

DISCUSSION

Endemic typhus was not recognized in Louisiana until 1929, but since that time 46 cases have been diagnosed. While 3 deaths have occurred, many of the cases might be regarded as rather mild and thus, unless the exanthem is observed by the physician the diagnosis would be difficult. No information exists as to the method of transmission, but the geographical distribution suggests possible contact with rats. Whether the rat flea or the rat mite is responsible remains unknown. Certainly the data from Louisiana lend no support to the theory of Kantor (1915) and would indicate that southern endemic typhus must be separated from the Brill's disease of Boston and New York, since none of these cases had contact with Old World typhus.

SUMMARY

Epidemic typhus apparently made its first serious inroads upon the population of New Orleans in 1847 and remained endemic for at least the next 6 years. The pestilence was introduced by immigrant boats from Europe (chiefly Ireland) and probably also by disbanded soldiers from Mexico. That the disease failed to penetrate inland is difficult to explain. It seems to have been confined chiefly to the poorer classes, although hospital attendants contracted it. For the 15 years following the Civil War, only 102 deaths occurred in New Orleans from typhus

in contrast to 1,301 deaths in the 19 years preceding the war. Endemic typhus was first recognized in Louisiana in 1929, and since then, 46 cases with 3 deaths, have been reported in the epidemiological statistics of the State Board of Health. These cases were chiefly from 2 parishes, Calcasieu and Orleans.

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Promotion of Human Health

THOUGH nature is sensational in her results, she is not sensational in her processes. In preventive medicine we seek to understand the moves which lead up to dramatic events, but the processes are far from dramatic. In the promotion of human health we gain little or nothing by the treatment of disease, for at the best this is merely a palliative. It can never be very successful even in its avowed object of restoring health to those who have lost it, because what we call disease is in reality not disease itself, but its end product. This does not refer to those acute diseases which are self-limited reactions. Here, improvements in treatment will do much to keep them within the bounds of physiology, so that they neither kill nor permanently damage us. But for those diseases which are not self-limited, for the results of long continued adverse factors which produce structural alterations of a permanent character, or which call for mechanical interference to preserve life, the future can give us little more than the past.—Dunstan Brewer, D.P.H., *Ann. Rep., Medical Officer of Health for the Year 1935*, Borough of Swindon, p. 7.

The Rural Health Conservation Contest as a Factor in Rural Health Development

CARL E. BUCK, Dr.P.H., F.A.P.H.A.

Field Director, American Public Health Association, New York, N. Y.

THE first whole-time county health department was established in 1908. Since that time the county or health district plan has come to be recognized as the most suitable method of organization for health administration in rural areas. This type of rural health administration has gradually developed until there are today approximately 540 whole-time county or district health units in this country.

In spite of the fact that during the past quarter of a century there has been definite progress in rural health work, at the present time less than one-quarter of the rural population is served by full-time local health units. Also on the discouraging side of the picture is the fact that many of these full-time units are not adequately staffed and financed to carry on even a reasonably comprehensive public health program. A considerable number of counties that were originally organized as so-called three piece units (that is, units with a full-time health officer, a public health nurse, and a sanitary inspector), still remain three piece units today. While it is encouraging to observe how well the basic principle of a county or a district as the unit for rural health administration is being accepted, it is discouraging to find so few rural health units which have gone beyond the establishment of the very minimum requirements essential for health services.

Lack of financial support is an obvious and often valid reason for failure to develop beyond the point of minimum staff. It likewise seems certain that in many rural areas most of the people have no understanding of the need or value of more adequate health services. Further development of rural public health work in this country would seem to depend upon recognition and furtherance of two essential principles:

1. That state and federal financial aid is essential for many county or rural districts.
2. That our rural areas need enlightenment on public health requirements and values.

The development of more adequate rural public health services is of vital concern to the people of the United States. This is indicated by the fact that rural death rates in general exceed urban rates, notwithstanding the natural advantages of country life.

The need for greater development of rural health work, together with the success of the City Health Conservation Contest as a precedent, led to the inauguration of the first Rural Health Contest in 1934. The Chamber of Commerce of the United States and the

American Public Health Association sponsored this project, made possible by a grant from the W. K. Kellogg Foundation. The purpose of the Contest is to develop basically sound and more adequate public health services in rural areas.

The first essential step in developing a sound and adequate public health program is to take careful inventory of the community's present facilities and needs. All counties participating in the Rural Health Contest appraise their health activities by preparing a Fact-Finding Schedule which covers minimum basic essential health services. While participation in the Rural Contest is of assistance to all rural health units, it is particularly beneficial to those units in which public opinion has not as yet been sufficiently aroused to make the most effective use of its present health facilities or to seek more adequate services. In preparation of the Fact-Finding Schedule the activities of all groups and organizations are taken into consideration. By this method the attention of local groups is effectively focused upon:

1. The need for effective coördination of the specific health activities which are known to form the basis of the local program.
2. The development of those community resources which have not been effectively and fully utilized, or which have not adequately been brought to light.

The Fact-Finding Schedule when completely filled out presents a report of the community's entire public health program. These reports are submitted to a Grading Committee on or before March 15 of each year and are carefully studied and analyzed. A detailed analysis of each Fact-Finding Schedule is forwarded to each participating community.

In the compilation and consideration of activities as they affect the broad public health program, the need for effective coördination becomes apparent. In addition to activities undertaken as specific health projects, there are in every community groups of individuals who have no connection with health organizations but whose effect upon the community public health can and ought to be of tremendous value. The importance of making the most effective use of such groups as private physicians, dentists, nurses, teachers, nutritionists, parents, ministers, and newspaper editors cannot be overemphasized. A truly comprehensive public health program will never be reached without giving such groups the opportunity of fully participating in the program. For successful participation in the Contest, and therefore for the successful development of a well-balanced, comprehensive public health program, every county or district health officer should consider whether or not he has given these groups the opportunity of developing their potentialities in promoting public health. It is such a community public health program, carefully planned so as to make the most effective use of all the community's resources, including these all important groups, that the Rural Contest seeks to stimulate and encourage.

Although the competitive aspect of the Contest unquestionably tends to stimulate and sustain interest, it is primarily a project designed to encourage the development of sound rural public health work. Full-time field service is provided to contact state and county district health units in the furtherance of this objective. State departments of health have been uniformly enthusiastic and coöperative.

During the first year of the Contest, all counties or districts having full-time health service with local chambers of commerce or similar business organizations affiliated with the Chamber of Commerce of the United States were eligible for participation. Of the

present 540 full-time county or district health units in the United States, only 200 were eligible by virtue of having local business organizations affiliated with the National Chamber. Of these, over one-half, 105, enrolled, and 69, or 65.7 per cent, submitted schedules for grading.

During the second year of the Contest the basis of eligibility was changed to permit a full-time district or county health unit which did not have a chamber of commerce affiliated with the National Chamber, to be sponsored by a local chamber of commerce in an adjoining or neighboring county. This year, the eligibility requirements were broadened still further, to permit full-time units without any suitable local business organization, to enter the contest through direct enrollment with the American Public Health Association, provided a representative public health committee is appointed to sponsor the Contest. All full-time rural health units are now afforded the benefits of participation. Entries in the second year's Contest includes 160 units. Unlike the City Contest which is conducted for various population groups, the rural competition is carried on in 6 geographic divisions of the country. Each county or district health unit competes only with other health units in its own geographic area.

The map indicates the geographic division of the country for purposes of the Rural Contest.

The winning unit in each geographic area is awarded a bronze plaque and certificates of honorable mention are presented to the higher ranking counties.

An article on county health department expenditures and personnel will be published in a subsequent issue of the *Journal*.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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PULMONARY TUBERCULOSIS DUE TO BOVINE TUBERCLE BACILLI

FROM time to time we have published editorials on the transmission of bovine tuberculosis to human beings. That such infection takes place was definitely proved at the University of Pennsylvania in 1902. The reports of the British Royal Commission and of the German Imperial Commission amply confirmed the findings, and since that time no one has seriously questioned the danger to human beings, especially children, of tuberculosis in cattle. The vehicle of transmission is, in the vast majority of cases, milk. We have more or less complacently accepted the fact that the bovine type of organism is transmissible to human beings, and that it is prone to produce lesions of the glands and bones, but not the pulmonary disease known generally as consumption. There have been many articles arguing for the relative unimportance of bovine infection, and the National Tuberculosis Association decided not to engage in that phase of the tuberculosis problem.

Our complacency in this regard has been considerably ruffled by the reports of pulmonary tuberculosis due to the bovine organism. From February, 1931, to July, 1933, the State Serum Institute of Copenhagen found the bovine type of organism in 26 patients suffering from pulmonary tuberculosis. During approximately the same period, the bovine type was found in 39 specimens of pus from the cervical glands, in the cerebral spinal fluid, and urine taken from the residents of Copenhagen. All of these patients were under 32 years of age and 10 under 5. In only one case was open tuberculosis found in another occupant of the patient's home. The writers of the report state that, so far from pulmonary tuberculosis due to the bovine type being rare, it is, as a matter of fact, extremely common.[1]

In Amsterdam,[2] in an examination of 115 adults suffering from pulmonary

tuberculosis, 3 gave the bovine organism, and in the province of North Holland, 10 out of 89 such cases also gave the bovine organism. Gastric lavage of 110 children yielded the bovine organism in 9. Examination of material from other forms of tuberculosis gave 55 human type and 11 bovine, but this latter finding is not pertinent to the present discussion. Griffith and Smith,[3] on the basis of extensive investigation in the north-east and southern counties of Scotland, make the statement that pulmonary tuberculosis is frequently caused by the bovine type of organism. From April, 1934, to December, 1935, these authors investigated 103 cases of pulmonary tuberculosis, in 13 of which the bovine type of organism was cultivated from the sputum. In 5 of these, there was a history of previous glandular tuberculosis so that the channel of entry was almost certainly the alimentary canal.

America appears to have fallen behind in this investigation. As far as we are aware, there is no laboratory in the United States doing systematic typing of cases of pulmonary tuberculosis. It is a tedious and expensive piece of work which can be undertaken only by well financed organizations, but that should be no bar to the investigation. It is not too much to say that we have no idea at the present time how many cases of pulmonary tuberculosis are occurring from infection with the bovine type of bacillus. We believe that we are in a better position as regards bovine tuberculosis than other countries, due to the activities of our Bureau of Animal Industry, but this does not excuse our lack of interest and activity in regard to the particular question under discussion.

Very recently the editor has been repeatedly urged to take the matter up and do all within his power to bring about such studies as are being made in England and some of the Scandinavian countries. This is due to a situation in some of our states so serious as to excite apprehension.

As an actual fact, we do not know what is going on, and this of itself is sufficient reason for undertaking the study.

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TRAINING OF PROTOZOOLOGISTS

THE training of medical protozoölogists in the United States in the past, with few exceptions, has been neglected.

The recent epidemic of amebic dysentery in Chicago, endemic malaria in the South, the frequent occurrence of trichomonas and trypanosomes in man and animals, and other tropical and semi-tropical protozoal diseases of man and animals necessitate well trained medical protozoölogists, who not only will be able to diagnose and teach, but who also will be engaged actively in research in advancing this branch of science.

Why has the training of protozoölogists in the past been so neglected?—In many of the American universities there is not a single professorial chair in medical protozoölogy. Most medical students acquire superficial and hurried information and occasionally a few demonstrations of pathogenic protozoa in the departments of bacteriology, public health, or clinical medicine.

The divisions of protozoölogy in departments of zoölogy of our universities, on the other hand, deliberately omit medical protozoölogy because of lack of proper facilities and knowledge of aseptic technic and experimental immunology.

Method of training of medical protozoölogists—The introduction of a brief, compact, and well thought out course of medical protozoölogy, preferably in some department of a medical school with daily instruction of from 4 to 8 weeks, probably will be sufficient to cover the subject. The requirements of entrance for such a course, however, should be high, and no student without knowledge of bacteriology, immunology, and histology should be permitted to take the course.

The departments of bacteriology, public health, clinical medicine, or tropical medicine could readily organize such courses, if necessary, by adding a trained protozoölogist to their staff.

The object of the course should be:

1. To give all necessary training to properly qualified students in the form of lectures, demonstrations, and actual laboratory work. The training should be general and should include representatives of all protozoal diseases of man, supplemented with protozoal diseases of animals. Students should also receive sufficient training to be able to identify non-pathogenic protozoa. Special stress should be placed on the etiology, epidemiology, pathology, symptomatology, diagnosis, prognosis, prophylaxis and treatment of protozoal diseases, and the morphological, cultural, and immunological relationship of the different species of protozoa.
2. To broaden the average student's conception of the many forms of protozoa and their activities.
3. To train for original research either under supervision or independently.
4. To train to teach courses of medical protozoölogy and to supervise research when appropriations go into these enterprises.

The teaching of medical protozoölogy has become a burden of the departments of bacteriology, public health, and immunology. The universities that were fortunate in having men in these departments interested actively in protozoölogy, as a rule gave effective training to medical students.

At the University of Michigan, Professor F. G. Novy, as early as 1903, introduced brief and effective lectures on protozoölogy to medical students in the class of bacteriology and intensive training and research to a few graduate students. He continued this until 1934, the last year of his active teaching.

It is hoped that the time is not far distant when in some of our best medical schools chairs or departments of medical protozoölogy will be established.

At present, specific training and information in medical protozoölogy may be obtained, among others, from the following institutions: Harvard University, Department of Tropical Medicine and Department of Comparative Pathology; University of Chicago, Department of Bacteriology and Hygiene; Johns Hopkins University, School of Hygiene and Public Health; Tulane University, Department of Tropical Medicine; Vanderbilt University; University of Michigan; University of California; U. S. Army Medical School; U. S. Naval Medical School; and the National Institute of Health, U. S. Public Health Service.

Medical protozoölogy is a broad subject, indeed, and many of its fields have not been explored as yet. With careful training of more protozoölogists, and with sufficient appropriations for research, this branch of science is bound to grow. Its future is rich with the allurement of interest and in possible benefit to mankind.

SIXTY-FIFTH ANNUAL MEETING AMERICAN PUBLIC HEALTH ASSOCIATION

IT is no empty formality nor specious courtesy to say that the meeting in New Orleans will go down as one of the best we have ever held. The registration has exceeded our expectations—nearly 1700. The welcome has been as warm as the weather. Both state and city officials have exerted themselves to show every courtesy possible, and the well known hospitality of this charming old city has come to its finest flower in welcoming the American Public Health Association and its guests.

New Orleans has a model Auditorium, ample for all possible demands. There are several halls for large meetings, and an abundance of committee rooms for smaller groups. There is abundant space for the largest possible number of exhibits which can be collected, with good lighting and acoustics.

The first general session was held in the huge Concert Hall of the Auditorium. We were welcomed by both state and city officials in the most delightful terms, so much so that everyone desired to accept the invitation of the state officer of health to remain until we went broke.

At this meeting Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, was installed as President, taking over the office held by Dr. Walter Brown. His address was received with deserved enthusiasm, and our readers have it before them in the present issue of the *Journal*.

In the absence of the chairman of the Sedgwick Memorial Committee, the President announced the award of the medal for 1936 to General Frederick F. Russell. This will be given further notice in another column.

Of the many delightful features which have marked the meeting, perhaps none is more noteworthy than the dinner on Tuesday night inaugurated by the Southern Branch of our Association, who invited the Western Branch to participate. This we hope is the inauguration of a most delightful custom. Certainly everyone appreciated it. More than 200 attended. The address of the evening was given by Dr. Allen W. Freeman, Dean of the School of Public Health of Johns Hopkins University, who very gracefully took the occasion to commemorate the services of southern men in the public health movement. We hope that each year will see a repetition of this function.

Space does not permit of a description of all of the functions which have been held by affiliated and associated organizations. Among these were the dinner of the Association of Women in Public Health, the luncheon of Delta Omega, meetings of the Harvard University Alumni, the Yale Alumni, Johns Hopkins Alumni, Massachusetts Institute of Technology Alumni, and the International Society of Medical Health Officers. There were also a number of scientific meetings of associated organizations, such as the American Association of School Physicians, the Association of State Registration Executives, Conference of State Laboratory Directors, Conference of State Sanitary Engineers, National Committee of Health Council Executives, State Directors of Public Health Nursing and Instructors in Public Health Nursing.

Of the constituent nations, Canada gave us the largest delegation. Fourteen members came, and Dr. S. Boucher, the honored Health Officer of Montreal, brought his three charming daughters. Our sister republic on the south was represented by Dr. Angel de La Garza Brito. With the opening of the wonderful

highway between the United States and Mexico City, we are fired with an increased desire to visit that beautiful city and the charming country of which it is the capital.

Cuba was represented by Mr. Carlos Martin and Dr. Domingo F. Ramos.

Among our guests we must mention Dr. Cicely D. Williams, West Africa; Dr. Frank S. Boudreau, League of Nations; Dr. Otto Neurath, Holland; Dr. Charles N. Leach, China; Mrs. Mary K. Cauthorne, Alaska; Dr. Abraham J. Levy, Palestine, and C. F. Blackler, Bermuda.

There were some 41 scientific exhibits, many of which had some feature which in the opinion of the judges was commendable. Certificates of merit were awarded to The American Red Cross, National Society for the Prevention of Blindness, Sewerage and Water Board of New Orleans, and the Committee on Administrative Practice, Health Conservation Contests.

The entertainments provided for the ladies were abundant and arranged by Mrs. Charles F. Buck, Jr., to whom we offer our grateful appreciation. The Ball arranged by the Chairman of the Entertainment Committee, Dr. A. E. Fossier, was delightfully in the spirit of old New Orleans, with its tableaux in carnival costumes, its Negro chorus and Negro street boys. A very large audience assembled and remained until the orchestra played "Good Night, Ladies."

As usual the annual banquet of the Association was a brilliant affair largely attended. The address was given by Dr. Henry E. Sigerist, Johns Hopkins University. Announcement was made of winners in the scientific exhibits.

Altogether the New Orleans meeting will long dwell in the memories of those who were fortunate enough to attend. Our only regret is that owing to our rules made necessary by the great extent of our country, it will be at least 12 years before we can again enjoy the gracious hospitality of this beautiful and historical southern city.

SOME OF THE NEW ORLEANS ANNUAL MEETING PAPERS TO APPEAR IN DECEMBER JOURNAL ARE:

Immunity to Virus Diseases
Goodpasture

Mental Hygiene in Public Health
Mitchell

Program in Maternal and Child Welfare Under the Social Security Act
Eliot

The Standardization of Typhoid and Paratyphoid Vaccines
Feemster, Wetterlow, and *Cianciarulo*

PUBLIC HEALTH EDUCATION*

Institutional Coöperation with the Press—The public relations problems of the hospital, the clinic, the sanatorium in the smaller community rests largely upon the superintendent or other executive as reviewed in "Selling the Small Community Hospital," by J. M. Beeler, M.D., superintendent of Spartanburg (S. C.) General Hospital.

Dr. Beeler discusses the need for community understanding, and how inter-hospital relations with the trustees and the lay auxiliary may be handled to advantage. Particularly important is "Coöperating With the Press."

Usually from our point of view the problem is the newspapers. They usually print much about what we do not want printed and little about the things we desire the public to know. We must remember, however, that we have an entirely different viewpoint. We feel that anything private is not news and the papers feel that everything concerning anyone in the community is news. We should have a common meeting ground and by our trying to understand their viewpoint obtain a better understanding on their part of our problems. I have found that if you are willing to coöperate with the newspapers they will in turn see your situation. They are in position to inform the public of your work, your plans, and to educate the people and establish confidence in what you are trying to accomplish. We must remember that the plans we have and the program we are planning must be news and of interest to our local community. We should remember that . . . when we refuse to take them (newspaper men) into our confidence they are apt to resent our attitude and refuse to coöperate with us. We must also remember that the institution belongs to the community, and the only way they can check on us is through the local papers.

There are certain hospital happenings which are always news and should be given to the press, such as: staff meetings, auxiliary meetings, emergencies, accidents, and illness of prominent people. The hospital may not feel free to discuss certain illnesses and accidents with the papers but the papers should be given the name of the physician and of the patient's family, so that they may obtain further information if the people desire to give it. In other words, coöperate with local papers, they are your mouth piece through which you can educate your community; and remember most papers are working for the same end that you are—the improvement of the community. . . .

In the same issue of *Hospitals*, American Hospital Assn., 18 E. Division St., Chicago, Ill. (Sept., 1936), is "Establishing Friendly Relations." A hospital executive systematically calls briefly upon patients; a friendly follow-up letter is sent to former patients; the business office humanizes the relations; and a hostess meets visitors in the lobby.

What is the result? Our hospital has become boosted widely, indirectly through our efforts, of course, but actually by the unconscious "pushing" of our work by our own ex-patients and their business, social, and family associates. It is the finest sort of publicity and it brings concrete award.

It has often been said, and with reason, that one's experience in a hospital is, for a considerable time afterwards, the most frequent conversational subject. What we have done is to capitalize on this phenomenon, always bearing in mind that the whole process would break down and react unfavorably against us if the "whispering campaign" was ever given a just cause to knock, not boost. . . .

Many public and private health agencies might well take to heart the conclusions of the author:

There is no claim to originality in all this, and to many it may not even be unusual; nevertheless I am convinced that a well con-

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

ceived plan for establishing friendly relationships with our patients, their visitors, the ministers, the contributor, the city administration, the staff, and the community at large will, in more ways than one, pay handsome dividends, and eventually gather a host of friends and boosters for the hospital, the value of which cannot be overestimated.

"A Simple Visual Method of Presenting Pertinent Data from the Hospital's Annual Report," Dr. C. G. Parnell of Rochester General Hospital, emphasizes the need of making annual report statistics easily grasped by "the board of trustees, the medical staff, and others concerned in the progress of the institution."

In order to present in an easily understandable form the salient data from the annual report, we have employed for several years in the Rochester General Hospital a very simple series of diagrammatic charts which at a glance will show the data of the current year in comparison with those of several previous years. The diagrams may be presented in the form of printed charts or on lantern slides, the latter method being preferable for presentation to any large group. The mimeographed charts have been found very useful in dealing with budget committees of the hospital and the Community Chest and with government officials and others responsible for provision for hospitalization of public charges.

The vertical block method is used for the diagrams. Other methods may be employed, but this seems to be the most readily understood and easily grasped. Charted curves are not as appropriate for this type of diagrammatic presentation. . . .

How Honest Can We Be?—Enthusiasm for a "good cause" sometimes brings a strain on ideals of honest dealing with the public. Dr. P. B. Brooks, Deputy State Commissioner of Health says:

Public health propaganda at times reflects something of the tendency, so common and apparent in much of the present-day commercial advertising, to exaggerate, overemphasize, and even distort facts in order to attract attention, make an impression, or carry a point. Sometimes the exaggeration is more or less unconscious and unintentional, the result of excess of enthusiasm. In another case it will be readily admitted and an attempt made to justify it on the ground that it is in a good cause.

Perhaps an attempt is being made to persuade an official body to undertake a certain project "in the interest of public health." The dangers of delay or failure to act are vividly pictured. Only those authorities are quoted and figures cited which are favorable to the project. Are there equally competent authorities who advocate some other procedure or data which suggest that a similar project elsewhere has failed? They are not mentioned. The project may be undertaken and be as successful as its advocates have predicted. On the other hand, enthusiasm is likely ultimately to be dampened by the almost certain discovery that the sponsors have been in some measure misled and action taken under a misapprehension. The project has "gone over" but the reputation of the original advocates will suffer. When they come later with a new project their arguments will be taken "with a grain of salt."

It is said of Abraham Lincoln that, in laying a case before a jury, he began by presenting and discussing all of his opponent's probable arguments. Thus he reduced the effectiveness of his adversary's arguments and created an impression of honesty and fairness. . . .

In *Health News*, State Dept. of Health, Albany, N. Y. Aug. 24, 1936.

When are health workers in danger of being dishonest?

"He and She, Not It"—Under this title P. D. Hugon tells how to personalize amateur movies.

Turning every "it" into a "he" or a "she" is, in brief, the dominant idea back of all dramatization—cinematographic, literary, or commercial. In a good photoplay, as in a good novel or a well conceived publicity stunt, there are no pure things or ideas; there are only persons, because it is only through personality that most people are able to reason back to abstractions. This obvious principle is commonly overlooked by highly educated people; hence their scenarios, their books, and their advertising alike tend to be dry and boring. The life story of Pasteur will reach millions who would not look at a text on biology. . . .

Here is a dentist who makes better plates. Will he show on the screen the manufacture and fitting of his dentures to a number of

patients? No! He will tell the story of a woman whose happiness was ruined by ugly or missing teeth (or of a man who was handicapped by the same cause). He will show, by way of contrast, a charming young person unattainable by her suitor because of his physical defect. Then he will briefly remedy the trouble and let the romance or the career bloom to a satisfactory conclusion. That is reducing the situation to an oversimple formula, of course; yet that formula is as basic as fondant to candy making. The flavoring can be varied in a thousand ways, but the foundation always must be substantially the same. . . .

Here is a social agency that wants to induce the mothers of babies to bring them to a free clinic. Mere views of the plant, the nurses, and the doctors may remove certain misunderstandings as to what goes on inside the walls, but these things will have little emotional appeal. Let the simple story be told of an ailing child contrasted with a healthy one, followed through a life of misery or happiness, and every mother in the audience will do the figuring for herself. . . .

In *Movie Makers,* 420 Lexington Ave., New York, Aug., 1936. *25 cents.*

Indirect But Graphic Presentation—Straight argument against a fallacy in many cases is not nearly so telling as a graphic, though indirect refutation.

Under "Vitamin Promotion" in *Journal of American Medical Assn.* (Aug. 22, 1936), we find the following:

. . . A new product is a so-called Vitamin Energy Bar, which is claimed to be the equivalent of 3 loaves of bread in fat, 1 lb. of butter in protein, 2½ lb. of cheese in carbohydrates, 2 bunches of celery in calories, 2 oranges in calcium, 1 large egg in phosphorus, and 4 quarts of buttermilk in iron. Somehow the promoter overlooked vitamins F and H as well as zinc, manganese, and copper. This is a fine example of the fallacy of equivalents as a standard of measurement. Instead of giving the equivalent in fat of the butter, the bread is chosen as the example; instead of giving the equivalent of the milk for calcium, oranges are chosen for that comparison. And the calories are said to equal those of 2 bunches of celery. Whoever picked celery for calories! Actually the "Vitamin Energy Bar" seems to provide ½ oz. of fat, ⅛ oz. of protein, and less than 2 oz. of carbohydrate, with traces of calcium, phosphorus, and iron. Those are the facts—but they do not sound nearly as impressive as the great quantities of food represented by the advertiser's equivalents. If however you really want to see if one "Vitamin Energy Bar" is the equivalent of all that food, eat the "energy bar" at one meal and all the food at another. Your digestive system will solve the problem for you—and not mathematically!

NEW

A new outlet for pictures and other types of graphic material is *Mid-Week Pictorial,* 148 E. 47th St., New York, N. Y. Long published by *New York Times,* now as an independent pictorial it will be developed for a large place in the news weekly field. We hope that some carefully selected photographs and other graphic material will reach the editor. Better first get a copy for *10 cents.*

The Child's Health Today
is the
NATION'S HEALTH TOMORROW

The National, State and Local Tuberculosis Associations of the United States

BOOKS AND REPORTS

Physician, Pastor and Patient: Problems in Pastoral Medicine—*By George W. Jacoby, M.D. New York: Hoeber,* 1936. 390 pp. Price, $3.50.

We have read this book with unusual pleasure, and believe that it is one which can be thoroughly recommended, especially to clergymen. There can be no question that every clergyman should know a good deal of medicine and physiology. Many of them show some interest in the subjects here discussed, but few have the necessary training to appreciate the problems presented.

The author writes entertainingly on the origins of medicine and of religion. Sketches of a number of religions and their effects on patients' faith and the general attitude of the adherents to medicine, are given.

Among the vital problems in which the physician and the clergyman are concerned are birth control, suicide, mismating and divorce, criminality, sex education, feeblemindedness, euthanasia, etc. Concerning divorce and mismating, he makes what seems to us a very strong point, in emphasizing the importance of careful selection in marriage rather than divorce, which he calls the undoing of a wrong. A chapter is given to "Modern Religion in Daily Life," in which what it is doing in medicine, hygiene, and social betterment is discussed. An excellent bibliography is given at the end.

There is nothing new in the book. Its value consists in the collection of a lot of material which is scattered through various journals and books on the special subjects considered here. There are a number of excellent illustrations. The whole book strikes us as being a sane discussion of the problems which affect physicians and clergymen alike, and on which they should get together more than they have done in the past. The printing and make-up are excellent. MAZŸCK P. RAVENEL

Principles and Practice of Recreational Therapy for the Mentally Ill—*By John Eisele Davis, B.A., M.A., in collaboration with Dr. William Rush Dunton, Jr. New York: Barnes,* 1936. 206 pp. Price, $3.00.

This textbook is an important contribution not only to the special field of physical education and recreation but also to educators and many others in public health, hospital, or related rehabilitative service.

The Scientific Book Club of New York includes it on its list of scientific books. It has been copyrighted in England. Dr. Matz, Director of Research of the Veterans' Administration, refers to it as a much needed textbook, and Dr. Adolf Meyer has not only written the foreword but has also said that it is a "helpful guide." This brief review merely records with grateful appreciation the real contribution it makes to an ever increasing hospital need.

On page 112, Mr. Davis writes particularly of the regressed patient and of the importance of stimulating the "interest field" and of the re-creation of orderly associations and coöperative relationship. This is one of the strongest points of the entire treatise on "Interest and Effort."

In the somewhat extended experience of the writer with mental patients in

large state hospitals, there has been found to be a fundamental necessity of having patients participate in any physical exercise that will assist in normal physical functioning. This point is vital. It is hoped that Mr. Davis may be able to observe and write about the physical training and recreational activities which are carried on in hospitals where neither age nor sex will have an influence on the findings but will thus have a bearing on regressed states for both men and women.

There have been control situations in Veterans' Facility hospitals that do not exist in other large hospitals, such as sex and age among patients, and nearly always there are well trained assistants. In state institutions it is often necessary to take on as assistants in physical training and recreation employees who have shown interest in the development of such a division of hospital service but who have not had any formal education or training for the work; and who have no knowledge of the educational and understanding technics of psychology, though they have a sympathetic attitude toward the mentally sick that is highly desirable. After such employees understand in particular that every effort must be made to replace sordid, unhealthy, and filthy habits by helping to create a new situation and to awaken interest in life, they frequently give most valuable assistance in the work, and kindly, friendly encouragement to the patients. Such workers may not understand "Practical Teaching Principles" but they can render more helpful service to patients by studying carefully "Formal and Informal Exercises" (Chapter V).

One very strong feature of this book of great value to institutions, is the consideration given to nurses and attendants, as untrained workers, who are assigned to work in recreation or physical training, and programs for their instruction are presented. Inability to plan ahead the sequence of events—either exercises or games—is due to the great lack of training and practice in theory. The author recognizes that any work of this character is under medical direction, and the responsibility of coöperating with the authorities in the matter. Ways and means by which a progressive program may be organized are pointed out.

There are analytical studies and charts worthy of serious attention, but, best of all, are the suggestions for future study presented in several section.

The efforts of the joint authors have certainly met with success in that the text is written in a concise manner, emphasizing throughout the deep interest held in the proper practice of "Recreational Therapy."

ELEANOR C. SLAGLE

The Thyroid: Surgery, Syndromes, Treatment—*By E. P. Sloan, M.D. Springfield, Ill.: Thomas,* 1936. 376 pp. Price, $10.00.

If a word of apology is needed for publishing in a public health journal a review of a book devoted largely to surgery, it may be found in the preface, in which the author stresses the preventive aspect, expresses his hope that what he has written will be of interest to the public health official, and says flat-footedly that control of thyroid disease is the province of preventive medicine, which, properly applied, will save immeasurably more lives than the surgeon's art can. It is unusual as well as refreshing to find a book in which the preventive side is so well presented along with competent treatment.

The discussion from the endrocrine standpoint is good, and the handling of pre-operative treatment, operative technic, and post-operative management is excellent. A criticism one is

inclined to make is that there is apparently lack of sufficient discussion of the question of metabolism as it relates to the thyroid problem. It is true that a general discussion which covers the ground fairly well is given, but it might be elaborated to make it of more use to the average man. There is a splendid chapter on the thymus.

The author expresses himself in an unusually clear and instructive fashion. The illustrations are exceptionally good. The printing and make-up of the book are what we have come to expect from the publisher. DUDLEY A. ROBNETT

Workers' Nutrition and Social Policy — *International Labour Office (League of Nations). Geneva. London: P. S. King and Son,* 1936. 249 pp. Price, cloth $2.50, paper $1.50.

A survey of data on the diets of workers in Europe and North America leads to the conclusion that large numbers of the industrial population are inadequately nourished. Such malnourishment and under-nourishment occur not only in impoverished and depressed areas, but in the most advanced industrial countries in times of normal business activity.

The cause of this condition is stated to be chiefly an economic one, although ignorance and ineffective use of available income are factors, as is also the non-use of the potential capacity of agriculture. The solution of the problem lies in research and education, social legislation leading to improved purchasing power, and international cooperation.

Although the data given in this bulletin on actual consumption of foods by workers are somewhat limited, the report contains much valuable and provocative material, which should be of especial interest to sociologists and nutritionists. There are able discussions of dietary standards and the nutritional needs of workers in various occupations. The social-economic aspects of the problem are likewise set forth in considerable detail.

Copies of this well printed report can be obtained in this country from the World Peace Foundation, 8 West 40th St., New York, N. Y. JAMES A. TOBEY

Your Child in Health and in Sickness—*By Hugh L. Dwyer, M.D. New York: Knopf,* 1936. 333 pp. Price, $2.75.

This is a convenient and practical handbook on child care from the standpoint of modern preventive pediatrics. It is written with the intelligent mother in mind. The text is readily comprehended and appropriately illustrated.

Each step that should be taken in raising the child from infancy to adolescence is considered. Results of scientific research of foods, immunities, and child guidance are incorporated. The material is singularly free from fads or fancies and should prove of considerable value in guiding young mothers in sensible methods of preserving and promoting the health of their children. RICHARD A. BOLT

Medical Aspects of Crime—*By W. Norwood East. Philadelphia: Blakiston,* 1936. 437 pp. Price, $6.50.

The author of this book writes from a background of 36 years of experience as Prison Medical Officer, Medical Inspector of Prisons, Prison Commissioner, and head of the Prison Medical Service of England and Wales. In the first 4 chapters he reviews the prison administration problems in England for the past two centuries and devotes considerable time to a historical résumé of conditions of English prisons in the early 18th century up to the present date. He makes comments relative to changes in the laws of prisons, the changes in the attitude of the general public toward crime and prisoners, and finally compares the physical welfare of

the present English prisoner with that of the early 18th century prisoner. The entire book is composed of lectures and papers which he has written and published in book form with special chapters devoted to attempted suicide, observations on exhibitionism, relationship of the skull and brain to crime, relationship of cellular imprisonment to detention in association, mental inefficiency and adolescent crime, suicide from the medical-legal aspect, mental defectiveness with alcohol and drug addiction, medical aspects of prison labor, mental aspects of crime, mental problems connected with the prosecution of offenders, sterilization, prison reaction types, psychological medicine, and criminal law.

In these various papers and lectures Dr. East has successfully evaluated the various problems of modern penal administration from the medical viewpoint and has injected a large amount of common sense in giving his personal opinions relative to some of the more modern ideas in the realm of criminology. He speaks from practical experience and with a mind apparently open to the many researches that have been made in this field, and his deductions are the product of the same experienced prison administrator. His analysis of 1,000 consecutive cases of attempted suicide, which is a criminal offense in England and punishable by 2 years' imprisonment, is very interesting. He reviews the literature of phrenology and the findings of such well known authors as Lombroso, Goring, McDougall, and others, and states that the students of criminology today have discarded phrenological speculations and have turned to psychology, the science of behavior, for an explanation of anti-social conduct.

In discussing the prison reaction types he speaks of 6 types: depressive reaction, impulsive reaction, hysterical reaction, paranoid reaction, mental deterioration, and malingering, and discusses each type. He feels that simple sterilization of criminals is of little eugenic value but more thought and research should be given to castration as a method of treatment of sex offenders in an effort to have them make a sex readjustment.

This book should be of great interest to all students of criminology, prison administrators, prison medical officers, and those interested in forensic psychiatry. He decries the ultra sympathetic approach to the problems of criminals which is frequently prevalent in the field of psychology.

P. C. ROBERTSON

The Growth and Distribution of Population—*By S. Vere Pearson, M.D. (Cambridge), M.R.C.P. (London). New York: Wiley,* 1935. 448 pp., 20 ill. Price, $4.00.

The author of this sociological work is physician to the Mundesley Sanatorium, Norfolk, England.

Information respecting the author's background, in addition to that suggested by the titles of his recent papers, may be found in the Preface where he states:

> An understanding of the problems connected with the growth and distribution of population requires a knowledge of economics and psychology, two sciences which I have studied for more than thirty years. I do not refer so much to the economics and psychology of the textbooks as to the elementary common-sense forms, a knowledge of which an average man or woman acquires from life's experience and from nowhere else. These require neither instruments nor laboratories.

As a consequence of this postulate the author states that he reached conclusions that "differ in many particulars from the conclusions arrived at by those who write on the subject of population."

The 23 chapters deal with a wide variety of subjects embracing climate, agriculture, property, law, government,

growth of cities, sanitation, vital statistics, love, town and country planning, ground values and property appraisals, "traffic troubles," housing, and emigration. The book is based essentially on the principles set down by Henry George and his followers. When these principles are generally accepted human geography, the author believes, will enter a new era.

The author displays an easy facility for disposing of the work of distinguished scientists in remarks pregnant with opinion. Moreover, these remarks, among others, are too frequently terminated with a gratuitous exclamation point. In referring to Raymond Pearl's fly experiments, which formed a chapter in his work on population growth, the author remarks, "Pearl's years of labour are sterile. Flies in bottles are really unlike assemblages of human beings!" Statements based on opinion are not limited to the author's references to scientists. For example, in a discussion of contraception he writes that the moral atmosphere of classes and groups in society that use contraceptives is generally low.

In spite of its shortcomings this personal record of a physician's relationship to the world about him is stimulative and deserves to be recommended to those interested in human affairs of the present and future.

The typography of the book is excellent. An adequate index is provided. There is no bibliography.

WILLIAM M. GAFAFER

Eye, Ear, Nose and Throat Manual for Nurses—*By Roy H. Parkinson, M.D. St. Louis: Mosby,* 1936. 232 pp. Price, $2.25.

In bringing his book up to date, Dr. Parkinson has again demonstrated his appreciation of the rapid growth of knowledge needed by our nurses in the care of eye, ear, nose and throat. We are all too prone to lump the whole subject under a few general rules of no specific value for guidance to those outside the profession needing wholesome advice.

This new and revised edition, especially part three, deeply impresses upon our minds not only the distinct necessity of a definite technic for the care of each specialty listed but a fundamental knowledge needed in directing those about us on questions that come up from time to time.

We welcome this book as a worth while asset to our reference library.

L. ELEANOR KEELY

Health Stories, Book Three—*By Anna B. Towse, Florence E. Mathews, and William S. Gray. Chicago, Ill.: Scott, Foresman & Co.,* 1935. 208 pp. Price, $.76.

This is a new book in the Curriculum Foundation Series and is intended for third grade children. Its immediate predecessor was reviewed in these columns some months ago. The current book maintains the same high standards of interest and usefulness.

MERRILL E. CHAMPION

Preventive Medicine—*By Mark F. Boyd, M. D. (5th ed.) Philadelphia: Saunders,* 1936. 561 pp. Price, $4.50

A book which has reached its fifth edition has usually proved its worth. The reviews of this work from the first edition on have been uniformly favorable. It has met with wide use and given general satisfaction.

So many new things come up in bacteriology and preventive medicine that the necessity for frequent editions of a book on either of these subjects is manifest. New material has been included in this edition on colds, ringworm, psittacosis, diphtheria, encephalitis, poliomyelitis, pneumonia, tuberculosis, malaria, typhus, and relapsing fever, making in all an edition of 33 pages.

This edition is well printed and bound and can be recommended as bearing the general excellent character of its precedessors and as being up to date. MAZŸCK P. RAVENEL

Healthful Living—*By Harold S. Diehl, M.D. New York: McGraw-Hill,* 1935. 354 pp. Price, $2.50.

Common sense and balance characterize this helpful book by Dr. Diehl. It is thoroughly scientific in its approach to the major health problems, and modern in its presentation.

The chapters on Stimulants and the Normal Sex Life may be too well balanced for the "last Puritan" on the one hand, or the "released modern" on the other, but at any rate these difficult subjects are presented with clarity and sanity.

The chapter on Exercise-Fatigue-Rest is reassuring to those of us who have felt that while exercise has its place in the health program it cannot accomplish miracles. Dr. Diehl takes issue with the physical culturists who claim that "exercise and diet will prevent everything from neurasthenia to cancer, from baldness to flat feet."

Very practical suggestions are offered on the choice of foods, weight and its control, and digestive disturbances. The results of the latest scientific research are incorporated in the chapters on Specific Disease Prevention and the Glands and Their Internal Secretion.

Dr. Diehl's sympathetic, as well as scientific, handling of the health problems of advancing years gives a poetic flavor to the concluding chapters.

RICHARD A. BOLT

Public Administration—*By John M. Pfiffner, Ph.D. New York: Ronald Press,* 1935. 530 pp. Price, $4.00.

Designed primarily as a textbook for courses in public administration, this volume should prove a useful reference guide for health administrators who desire to familiarize themselves with trends in governmental organization and with practical developments in public management—local, state, and national. References to public health are frequent throughout the text, together with constructive discussions of relationships of various governmental junctions. Defects in administrative methods are considered objectively; and more than one side of a debatable practice or organization plan is presented.

The 24 chapters are arranged under 5 major headings: organization, personnel, financial administration, administrative law, and public relations; the latter, for example, dealing with the public and its servants, reporting to the public, and standards for measuring administrative performance. The advantages and limitations of boards and commissions, the significance of the merit system, budget planning and purchasing are considered in the light of the mature experiences of the author. This volume is further characterized by clarity of presentation of technical details, abundance of helpful references, and good printing.

IRA V. HISCOCK

New Pathways for Children With Cerebral Palsy—*By Gladys Gage Rogers and Leah C. Thomas. New York: Macmillan,* 1935. 167 pp. Price, $2.50.

There are very few books of a practical nature written in English which deal with the education and reëducation of children with spastic paralyses. This book is exceptional in its method of presentation and lucid descriptions. It can be read with profit by parents and teachers as well as by those entrusted with the technical methods of treating the aftermath of cerebral palsy.

The summer camp with a definite and constructive program of activities for these handicapped children is

recommended. In order to stimulate and maintain interest, it is set up along the lines of Robin Hood and his band of merry men. Robin Hood's Barn becomes the center of activity. The authors stress the importance of conscious relaxation for these children and give concrete suggestions to inculcate the health habit.

The chapter on Muscle Training through Indirect Methods is especially helpful. The illustrations of apparatus used add to the value of the book. The possibilities and limitations of surgical treatment of cerebral birth palsies are given briefly in a chapter by Dr. R. Nelson Hart of the Shriner's Hospital in Springfield, Mass.

Part II discusses in a sympathetic manner the responsibilities of the parents, the importance of a case history, and the arrangement of the child's room. The educational aspects are well balanced in the concluding chapter.

RICHARD A. BOLT

The Legal Aspects of Milk Control—*By James A. Tobey. Chicago: International Association of Milk Dealers,* 1936. Price, $3.00.

Copies of this valuable text, which covers such topics as the public control and sanitary regulation of milk, licensing, standards, pasteurization, tuberculin testing, containers, and liability, and has references to more than 300 court decisions, can be ordered through the Book Service of the A.P.H.A.

Health Center Districts, Statistical Reference Data, Five-Year Period, 1929-1933 *(3rd ed.)—Compiled by Godias J. Drolet and Marguerite Prudence Potter; prepared under direction of Kenneth D. Widdemer, Committee on Neighborhood Health Development, Department of Health, New York City,* 1935. 140 pp. Price, $1.00.

The third edition of this useful statistical handbook meets a growing demand on the part of health and social agencies, and other professional groups, for localized vital statistics as a basis for sound program building. The 140 pages contain not only statistical tables, giving basic information concerning population, births, infant and maternal mortality, and important causes of sickness and death by districts for the entire city, but also an enlightening graphic presentation by health areas of characteristics of eight "Sore Spot" districts, or districts where the most difficult health and social conditions exist and where the city's most active district health development has occurred.

The material contained in this handbook and the method of presentation illustrate methods of appraising needs which have heretofore been only partially utilized in health administration. After commenting on the helpful guidance to be derived from such information, the health commissioner makes the following statement regarding health district organization as a means of securing successful health service in a large city:

> Advance in public health depends on a better understanding and a health consciousness on the part of the general public. To attain this an intimate contact between the health agency and the workers and the public is essential. Health work should be emphasized and developed from within small units of population carefully linked with supervision from without. The health center is something that the public can see, feel, and have a part in. Health center activities can be adjusted to meet local conditions and needs. Public health programs have too often failed to make progress because of lack of understanding and team play between health officials, nonofficial agencies and medical groups. Health centers based on friendliness and understanding should help to remedy such situations.

One of the first steps of the Committee on Neighborhood Health De-

velopment, before recommending formal organization of district health centers, as described in the handbook, was to survey the distribution and composition of the population, neighborhood by neighborhood in each of the five boroughs, the existing health and hospital facilities, the size and distribution of the school population, and especially health conditions, mortality and morbidity records in every section. With these data, showing needs, responsibility, and opportunity, practical boundaries for each district were outlined. Recognizing the limitations of statistical data for single years when broken down for small areas, the committee assembled this 5 year experience. The handbook is a valuable contribution, not only as a source of information for workers in New York City, but as a reference book for teachers and students of vital statistics and health administration elsewhere.

IRA V. HISCOCK

The Normal Diet and Healthful Living—*By W. D. Sansum, R. A. Hare, and Ruth Bowden. New York: Macmillan,* 1936. 243 pp. Price, $2.00.

This book is an outgrowth of the custom of the authors for several years to meet daily with groups of patients to discuss subjects, particularly those connected with nutrition. These mutual exchanges of ideas proved of benefit to both patients and the authors. It is aimed to present in simple language the practical application of recent discoveries in this field. "If even a greater part of our present nutritional knowledge . . . were well utilized, not only malnutrition but many common ailments would in a very large measure disappear."

The first 3 chapters of the book deal with essential food substances, their sources, and the purposes they serve. The following chapters deal with the physiology of digestion and a study of metabolism; the elimination of wastes, and discussion of the dangers attending the use of cathartics; discussion of overweight and underweight, their causes and treatment; the influence of diet on growth and development of teeth. "A seemingly irrelevant chapter on focal infection is included to show that certain diseases which many have ascribed to diet are really of bacterial origin, and that a cure must be brought about by removing the bacteria." The closing chapter gives a survey of methods of treatment including brief discussions on rest, dietotherapy, physical treatment, psychotherapy, drugs, vaccines, sera, glandular preparations, surgery, X-ray and radium, nursing. Emphasis is laid on the intelligent use of the many therapeutic agents available, which is necessary for the best interest of the patient. In the appendix are given suggestions on planning the family menu, with sample menus of different types of diets.

This little volume is a valuable contribution in supplying to the public badly needed reliable information based on our present knowledge of health and nutrition. The general public is being increasingly and alarmingly preyed upon by faddists and quacks motivated by personal gain in exploiting their dieting systems, cures, and treatments. Reliable information based on recent discoveries is not easily available to a large proportion of the population. They get only fragments of the facts in advertisements too often distorted and perverted to serve selfish interests. Presentation of accurate information in simple, non-technical language from authoritative sources is the only way to combat this evil successfully. To this end the authors of this book have contributed a real service.

D. BREESE JONES

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

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Gisela K. Fredericks, R.N., Box 153, Pahala, Kau, Hawaii, Laboratory worker, Sugar Plantation

George H. Hauser, M.D., 3625 St. Claude Ave., New Orleans, La., Assistant City Bacteriologist and Pathologist

E. Louise Paddock, Middletown Milk and Cream Co., Slate Hill, N. Y., Laboratory Technician

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William F. Wells, B.S., Boston, Mass., Instructor in Sanitary Science, Harvard School of Public Health

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Herman F. Easom, M.D., State Board of Health, Raleigh, N. C., Director, Division of Industrial Hygiene

Wesley M. Graff, 1 Park Ave., New York, N. Y., Manager, Conservation Dept., National Bureau of Casualty and Surety Underwriters

Willis C. Templer, M.D., Corning Glass Works, Corning, N. Y., Medical Director

Child Hygiene Section

O. F. Bradford, M.D., Box 175, Columbia, Mo., State Pediatrician

Howard B. Mettel, M.D., 614 Hume Mansur Bldg., Indianapolis, Ind., Director, Bureau of Maternal and Child Health, State Board of Health

Margaret Riassetto, R.N., County Superintendent of Schools, Merced, Calif., Rural Health Supervisor, Merced County Schools

Public Health Education Section

George W. Baltzell, P. O. Box 210, Jacksonville, Fla., Auditor, State Board of Health

Catherine M. Forrest, R.N., 65 South 4 St., Columbus, O., Health Educator, State Dept. of Health

David C. Houston, 604–3rd Ave., Salt Lake City, Utah, Vital Statistician and Director of Health Education, State Board of Health

Mrs. John McL. McBryde, 535 St. Charles St., New Orleans, La., Executive Secretary, Tuberculosis and Public Health Assn. of Louisiana

Mildred N. Nelson, M.D., 148 E. 48th So. St., Murray, Utah, Director, Bureau of Maternal and Child Health, State Board of Health

Esther G. Pease, Court House, Sumter, S. C., Executive Secretary, Sumter County Tuberculosis Assn.

F. Fabian Smith, D.M.D., State Dept. of Health, Seattle, Wash., Dentist, Division of Maternal and Child Hygiene

Public Health Nursing Section

Sarah G. Bush, R.N., State Dept. of Health, Columbus, O., Chief, Division of Public Health Nursing

Stella R. Cohen, 127 West 79 St., New York, N. Y., Superintendent of Nurses, Dept. of Health

Mauna K. Hainline, R.N., Minier, Ill.

Margie J. Jones, Lonake, Ark., County Health Nurse

A. Louise Kinney, 1412a Missouri Ave. E., East St. Louis, Ill., Director, Visiting Nurse Assn. of St. Clair County

Helen B. Reynolds, 1636 Bush St., San Francisco, Calif., Director, Visiting Nurse Assn.

Epidemiology Section

Percy L. Harris, M.D., 4185 N. High St., Columbus, O., Assistant Chief, Bureau of Venereal Diseases, State Dept. of Health

Robert D. Higgins, M.D., M.P.H., Box 654, Ashland, Ky., Director of Health

Harvey S. Kinne, M.D., 262 E. Main St., Middletown, N. Y., Epidemiologist-in-training, New York State Dept. of Health

Edward S. Rogers, M.D., Osborne Rd., Loudonville, N. Y., Director, Bureau of Pneumonia Control, State Dept. of Health

Fred L. Soper, M.D., Dr.P.H., Rockefeller Foundation, 49 W. 49 St., New York, N. Y., Representative for South America, International Health Division

Unaffiliated

Wendell R. Ames, M.D., 212 Sterling Ave., Buffalo, N. Y., Epidemiologist-in-training, State Dept. of Health

Rufus E. Applewhite, M.D., Winnsboro, La., Director, Franklin Parish Health Unit

Lowell S. Selling, M.D., Ph.D., 330 Recorder's Court, Detroit, Mich., Director, Psychopathic Clinic

G. Harold Warnock, M.D., 528 Seward St., Rochester, N. Y., Epidemiologist-in-training, State Dept. of Health

SEDGWICK MEMORIAL MEDAL

AT the New Orleans Annual Meeting, the Sedgwick Memorial Medal, given "for distinguished service in public health," was awarded to Frederick F. Russell, M.D., Lecturer in Preventive Medicine and Public Health in Harvard Medical School and Harvard School of Public Health.

Frederick F. Russell, M.D.

This medal, awarded by a special committee of the American Public Health Association annually, was created in memory of the late William Thompson Sedgwick, Professor in Massachusetts Institute of Technology, and one of the outstanding investigators and teachers in the field of public health.

For 22 years, beginning in 1898, Dr. Russell was a member of the Army Medical Corps, and is now Brigadier General of the M.O.R.C., U. S. Army. He rendered distinguished service in the field of public health by demonstrating for the first time the efficacy of vaccine prevention of typhoid fever among the United States troops mobilized along the Mexican border in 1911 and subsequent years.

In 1920 Dr. Russell became Director of the Public Health Laboratory Service of the International Health Board, Rockefeller Foundation, and later succeeded to the position of General Director of the International Health Board, now the International Health Division of the Foundation, from which he retired in 1935. Since 1924 he has been a member of the Public Health Council of the State of New York. He was awarded the Distinguished Service Medal in 1919. He is a Fellow of the American College of Surgeons, the New York Academy of Medicine, the American Medical Association, the Association of American Physicians, the Royal Medical Society of Budapest, Hungary, and a corresponding member of the Gesellschaft der Aerzte, Vienna, Austria. He became a member of the A.P.H.A. in 1920 and a Charter Fellow in 1922.

NEWS FROM THE FIELD

FRANKWOOD E. WILLIAMS, M.D.

MENTAL health workers mourn the sudden and premature death of Dr. Frankwood E. Williams, for he was one of the country's outstanding leaders in mental hygiene and for many years its foremost spokesman. Dr. Williams received his medical education at the University of Michigan, and immediately after graduation, in 1912, became resident physician at the State Psychopathic Hospital in Ann Arbor, going from there to the Boston Psychopathic Hospital, then serving as Medical Director of the Massachusetts Society for Mental Hygiene. He was Associate Medical Director, and, subsequently, Medical Director of The National Committee for Mental Hygiene, being connected with the committee from 1917 to 1931. He was Vice-Chairman of the National Health Council 1922–1923.

Dr. Williams's 14 years of service with the National Committee were coincident with the period of its greatest growth. During this time the mental hygiene movement made world-wide progress, culminating in the First International Congress on Mental Hygiene held in Washington in 1930 and attended by representatives from 50 countries. Dr. Williams organized the scientific program which was so largely responsible for the success of this notable conference.

Dr. Williams touched the mental hygiene movement at many of its most vital points, helping powerfully to shape its philosophy and direction, and profoundly influencing the thought of all workers in mental health and related fields. The present-day conception of mental health as a broad and inclusive term, meaning not merely freedom from mental disease but the capacity for personal and social adjustment in all its phases, is to no small degree due to his work. To him mental health stood for the expression of human behavior at its best, for the wholesome fulfillment of personality, the ability to attain and maintain satisfactory human relationships. As such it embraces many aspects of life not formerly considered as matters of health and goes beyond "health" in the restricted sense of that term. Hence the influence of mental hygiene upon fields of endeavor outside of public health proper, and the wide scope of its social inferences and applications. In its preventive and positive aspects, Dr. Williams saw that it could not be confined to the psychiatrist, but, being a basic factor in all human affairs, was of vital interest to the general practitioner, pediatrician, nurse, social worker, educator, minister, and others dealing with human problems.

Dr. Williams was a great educator and an effective interpreter of mental hygiene teachings in all their implications. As a lecturer and writer he was much in demand and he contributed widely and deeply to professional and public education in mental hygiene. He edited *Mental Hygiene* the official organ of the mental health movement in this country from its inception in 1917 for 15 years. His untimely death brings to a close, all too soon, a notable and brilliant career.

ETHER DAY

ETHER Day was observed on October 16 at Harvard Medical School. Dr. Paul Dudley White, Assistant Professor of Medicine, delivered the principal address.

ARMY MEDICAL LIBRARY ANNIVERSARY

THERE will be a celebration of the One Hundredth Anniversary of the founding of the Army Medical Library, of Washington, on November 16.

The celebration will be held in the Library building at 8:00 P.M., and more than 1,000 invitations have been issued, approximately half of these to foreign institutions and libraries, and individuals well known in the fields of medical science and in the history of medicine. At the invitation of the Surgeon General of the Army, Sir Humphry Davy Rolleston, Bart., of Haslemere, Surrey, England, has consented to deliver the oration. Sir Humphry was formerly Regius Professor of Physic of the University of Cambridge, and is interested in the history of medicine and particularly in the Army Medical Library, which makes his coming visit of particular interest and significance. The program will include an introduction by the Librarian and an address of welcome by the Surgeon General of the Army, Major General Charles R. Reynolds, to be followed by an examination by the invited guests of the operation of the library with explanations by the staff, and a display of rare books and manuscripts. Following the program refreshments will be served and music will be furnishcd by the U. S. Army Band. Colonel Harold W. Jones, Medical Corps, the Librarian of the Army Medical Library, is General Chairman of the meeting.

AMERICAN CONGRESS OF PHYSICAL THERAPY

AT the 15th annual convention of the American Congress of Physical Therapy, held in New York, September 7–10, William Bierman, M.D., of Mount Sinai Hospital, New York, was elected President. He succeeds John S. Hibben, M.D., of Pasadena, Calif.

HUMAN GENETICS

THE Bureau of Human Heredity, of London, is collecting material dealing with human genetics.

The Bureau is directed by a Council representing medical and scientific bodies in Great Britain. It is affiliated with the International Human Heredity Committee, which insures coöperation in areas where research is proceeding.

The Council would be grateful to receive all available material from institutions and individuals, furnishing well authenticated data on the transmission of human traits whatever these may be. Pedigrees are particularly desired; twin studies and statistical researches are also relevant.

Material should be given with all available details in regard to source, diagnostic symptoms and the name and address of the person or persons who vouch for accuracy. All such details will be regarded as strictly confidential.

Those wishing for a copy of the Standard International Pedigree symbols may obtain one from the Bureau of Human Heredity, 115 Gower Street, London, W. C. 1, England.

HUGH S. CUMMING

ON January 31, 1936, Dr. Hugh S. Cumming * retired as Surgeon General of the U. S. Public Health Service, a position which he had held from February, 1920, until that date (*A.J.P.H.*, Mar. 2, 1936, p. 312).

In honor of Dr. Cumming, a document has been published giving the speech of the Honorable S. O. Bland, of Virginia, in the House of Representatives (Feb. 24), and letters from President Roosevelt and the Secretary of the Treasury.—*Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service.* Gov. Ptg. Office, Washington, 1936.

* Fellow A.P.H.A.
† Member A.P.H.A.

RAY LYMAN WILBUR COLLECTION ON SOCIAL PROBLEMS

THE Hoover War Library, a part of the Stanford University Library at Palo Alto, Calif., is assembling detailed historical material about the history, objectives, and activities of the various organizations related to the health field.

It is planned to make these materials part of the Ray Lyman Wilbur Collection on Social Problems in the Hoover War Library. This will be a separate unit which contains the files and records of the White House Conference on Child Health and Protection, Better Homes in America, the President's Conference on Home Building and Home Ownership, and an extensive collection on medical economics.

According to Mrs. Inez G. Richardson, who is Curator of the Collection, this information and the materials will be made available for the use of a wide range of students in training for positions of leadership in education and public health.

The American Public Health Association has been invited to submit information regarding its historical origin and its present activities.

SHORTAGE OF PUBLIC HEALTH NURSES

ACCORDING to a special report on health department nursing service, prepared by the Advisory Committee of the National Organization for Public Health Nursing, Boston leads in the 10 largest cities in the country in the number of public health nurses with 45 per 100,000 population, and Chicago is the lowest with 17 per 100,000. The following numbers are given for the other large cities:

Detroit	32 per 100,000
Cleveland	30 per 100,000
Milwaukee	30 per 100,000
Pittsburgh	28 per 100,000
Baltimore	26 per 100,000
St. Louis	22 per 100,000
Philadelphia	19 per 100,000
New York	18 per 100,000

WESTERN SCHOOL OF PUBLIC HEALTH

THE University of California and Stanford University have organized a Western School of Public Health to assist health departments of western states in the training of public health personnel. Social Security funds are used to finance the school. Dr. Karl F. Meyer,* San Francisco, is in charge.

WEST VIRGINIA INDUSTRIAL HYGIENE BUREAU

THE State Department of Health has established a bureau of industrial hygiene financed by federal funds matched by state appropriations, with Dr. Otto J. Swisher, Jr., Berkeley Springs, as director.

NEW LEPROSARIA

A SPECIAL committee of the Philippine Islands Bureau of Health has selected sites for 3 regional treatment stations for lepers in Luzon: Enrile, Cagayan; Bangued, Abra; and Norzagaray, Bulacan. The president of the islands advocates establishment of these stations, believing that it is unwise to segregate all lepers in Culion.

NEW HEALTH UNITS IN RHODE ISLAND

THE State Department of Health has established 3 new district health units in coöperation with the U. S. Public Health Service. Dr. James P. O'Brien, Woonsocket, will be in charge of the north district; Dr. Joseph Castronovo, Providence, the southeast district; and Dr. Raymond F. McAteer,† Peacedale, the south district.

SANITARY OFFICERS' ASSOCIATION

THE name of the New York State Sanitary Officers' Association has been changed to New York Health Officers' Association. Dr. Chalmer J. Longstreet,† Binghamton, is president.

* Fellow A.P.H.A.
† Member A.P.H.A.

NEW MEXICO HEALTH OFFICERS MEETING

AT the Conference of New Mexico District Health Officers held in Santa Fe on July 10, the following resolution was unanimously adopted and forwarded to the secretary of the New Mexico Pharmaceutical Association:

WHEREAS the prevention of the spread of syphilis depends upon its treatment in the early contagious stage, and

WHEREAS in the 3 years only 2 requests have been made to the state laboratory for diagnostic outfits for use in the early seronegative stage, and

WHEREAS we have heard evidence that in the early stages many people seek and secure prescriptions from drug stores, and

WHEREAS it is incontrovertible that no treatment secured in this way is of any value for the cure of syphilis or the elimination of contagion, now therefore be it

RESOLVED that this second conference of the New Mexico District Health Officers urge the New Mexico Pharmaceutical Association to take whatever steps it finds practicable to discourage and to prevent the prescription by drug store clerks and pharmacists for the disease of syphilis and that they encourage all pharmacists in the state to urge upon their customers the great importance to themselves as well as to the public health of immediate medical treatment for this disease.

RHODE ISLAND'S NEW DIVISION OF INDUSTRIAL HYGIENE

THE State Department of Health has established a Division of Industrial Hygiene through funds available under the Social Security Act. Dr. James Philip Deery,† Wallum Lake, R. I., is Director.

CRAIG YEISER MEMORIAL FUND

THE University of Cincinnati has received a gift that in 5 years will amount to $55,000 from Mrs. Louise Fleishman Yeiser to establish in the college of medicine the Craig Yeiser Memorial Fund in Preventive Medicine, for research work.

MONTCLAIR HEALTH DEPARTMENT LABORATORY FIRE

ACCORDING to the *New York Times*, a fire of undetermined origin on August 17 caused damage estimated at more than $5,000 in the Health Department Laboratory on the third floor of the Montclair Municipal Building, Montclair, N. J. Valuable laboratory equipment was said to have been destroyed.

ANNUAL REPORT OF ROCKEFELLER FOUNDATION

DURING 1935, the Rockefeller Foundation expended $12,725,439, of which $2,733,050 was for medical science, and $2,200,000 for public health work.

TEXAS INDUSTRIAL HYGIENE DIVISION

THE State Department of Health has created a division of industrial hygiene financed by Social Security funds, with Dr. Carl A. Nau,† formerly Professor of Physiology, University of Oklahoma School of Medicine, as director.

INDUSTRIAL HYGIENE IN VIRGINIA

A NEW Bureau of Industrial Hygiene was established by the State Department of Health in Virginia on July 1, with Dr. William D. Tillson,† of Richmond, in charge. The bureau is financed by Social Security funds.

ERADICATION OF BOVINE TUBERCULOSIS

THE State of Rhode Island has been designated a modified accredited area, signifying the practical eradication of bovine tuberculosis. The recognition of Newport County as a modified accredited area placed all the counties in Rhode Island in that status. The term

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* Fellow A.P.H.A.
† Member A.P.H.A.

is used by department and state veterinary officials to designate areas in which there is less than one-half of 1 per cent of tuberculosis among cattle as shown by official testing. All reactors to the tests must also be removed and precautions taken to prevent reinfection of the area.

With Rhode Island, there are now 41 states listed as modified accredited areas, in addition to the District of Columbia.

STUDY OF SILICOSIS

THE New York City Department of Health, Cornell University Medical College, New York Hospital, and the New York Tuberculosis and Health Association are conducting a study of silicosis made possible by an appropriation from the WPA. About 3,000 workers exposed to dust will be examined and some will be admitted to wards of the New York Hospital where intensive bacteriologic, pathologic and clinical studies, will be carried out.

CARY P. MC CORD HEADS DETROIT BUREAU OF INDUSTRIAL HYGIENE

THE Detroit Department of Health recently established a Bureau of Industrial Hygiene and Occupational Disease to coöperate with industry in the elimination of work conditions inimical to workers' health. It will be an advisory rather than a regulatory or law enforcing agency. The department is in charge of Dr. Cary P. McCord,* as Director; William H. Cary, Jr.,* as Sanitary Engineer; W. G. Frederick, as Chief Chemist; and Herbert Walworth, as Engineer for field activities.

PERSONALS

DR. MELVIN E. MCCASKEY, Little Rock, Ark., has been appointed to the State Board of Health to succeed the late Dr. Wells F. Smith, Little Rock.

DR. ROY E. SCHIRMER, formerly of Little Rock, Ark., has been named Director of the Mississippi County Health Unit at Blytheville, succeeding Dr. Arthur M. Washburn.†

DR. JAMES R. SCOTT,* formerly Health Officer of the Third Health District of New Mexico, has resigned from this position to resume teaching at the University of New Mexico, Albuquerque, in the Department of Health Education.

DR. JAMES T. DUNCAN,† Acting Health Commissioner of Wooster, Ohio, has accepted a position as Assistant Epidemiologist with the Virginia State Department of Health at Richmond.

DR. CHARLES J. FISHER, of Moulton, Ala., has been appointed Health Officer of Lawrence County.

DR. WILL M. HOYT, of Hillsboro, Ohio, has been appointed Health Officer of Highland County.

DEATHS

JOHN LEO BURKHART, Big Rapids, Mich., at one time State Health Commissioner, died July 12.

DR. ALEJANDRO RUIZ SOLER, of Puerto Rico, Insular Commissioner of Health from 1917 to 1925, died September 23. He was 50 years old. The first islander to head the Health Department, he assumed charge after passage of the organic act granting American citizenship to Puerto Ricans. Under his direction, the first hospital for tuberculosis cases was established on a 100-acre site near San Juan which he had secured as a gift.

SIR GEORGE SEATON BUCHANAN, whose official work in connection with public health and sanitation has been recognized throughout the world, died October 11, at the age of 67.

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* Fellow A.P.H.A.
† Member A.P.H.A.

DR. JAMES CLIFFORD PERRY,* of San Francisco, Calif., retired Assistant Surgeon General and Medical Director of the U. S. Public Health Service, died suddenly October 19, at the age of 72. In 1889 he entered the U. S. Public Health Service as an Assistant Surgeon. He became a Surgeon in the Service in 1904, a Senior Surgeon in 1915, Assistant Surgeon General in 1918, and the Service's Medical Director in 1930. Dr. Perry retired from the Public Health Service a few years ago.

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American Association of Railway Surgeons. Chicago, Ill. Nov. 5–7.

American Education Week. Nov. 9–15. Write: Educational Press Association, *New Jersey Educational Review*, 605 Broad Street, Newark, N. J.

American Society of Tropical Medicine. Baltimore, Md. Nov. 18–20.

Army Medical Library. Celebration of the One Hundredth Anniversary of the Founding. Library Building, Washington, D. C. Nov. 16.

Association of Dairy, Food and Drug Officials of the United States. Miami Biltmore Hotel, Coral Gables, Fla. Dec. 7–10.

Michigan Public Health Association. Lansing, Mich. Nov. 11–13.

National Association of Commercial Organization Secretaries. Omaha, Nebr. Nov. 8–11.

National Municipal League. Annual Conference on Government. Toledo, Ohio. Nov. 16–17.

New Jersey Health and Sanitary Association, Inc.—Sixty-second Annual Meeting. Hotel Woodrow Wilson, New Brunswick, N. J. Nov. 20–21.

New York Diabetes Association. New York Academy of Medicine, New York, N. Y. Nov. 13, 8:30 P.M.

New York State Association of Public Health Laboratories. New York State Laboratory. Albany, N. Y. Nov. 6.

Refrigeration Service Engineers Society. Hotel Gayoso, Memphis, Tenn. Nov. 11–13.

Southern Branch, American Public Health Association—Fifth Annual Meeting. Baltimore, Md. Nov. 17–18.

Southern Medical Association. Baltimore, Md. Nov. 17–20.

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